Permit

Environmental Protection Act 1994

Environmental authority EPML00731213

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994*.*

Environmental authority number: EPML00731213

Environmental authority takes effect on 1 July 2025.

The anniversary date of this environmental authority is 13 August each year.

Environmental authority holder

Name	Registered address
MMG Dugald River Pty Ltd	Level 23, 28 Freshwater Place SOUTHBANK VIC 3006

Environmentally relevant activity and location details

Environmentally relevant activities	Locations		
8-(1) Chemical storage >50t class 1 or 2 8-(3) Chemical storage >500m^3 class C1 or C2 8-(4) Chemical storage >200t solids or gases 15-Fuel burning >500kg per hr 16-(2c) Extractive >1,000,000t per yr 16-(3c) Screening >1,000,000t per yr 31-(2b) Mineral processing >100,000t per yr 33-Crushing, milling, grinding or screening >5,000t per yr 63-(1b)(i) Sewage treatment >100 to 1500EP - IT or IR 63-(1b)(ii) Sewage treatment >100 to 1500EP - no IT or IR Mining - ML gold ore - 16, Site Specific Mining - ML copper ore - 17, Site Specific Mining - ML lead, silver or zinc - 18, Site Specific	MDL79 ML2467 ML2468 ML2469 ML2470 ML2471 ML2477 ML2478 ML2479 ML2480 ML2481 ML2482 ML2496 ML2497 ML2498 ML2499 ML2500 ML2501	ML2502 ML2556 ML2557 ML2558 ML2559 ML2596 ML2599 ML2601 ML2638 ML2684 ML2685 ML7496 ML90047 ML90049 ML90050 ML90051 ML90211 ML90212	ML90213 ML90218 ML90220 ML90230 ML90237

Queensland Government

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that an owner or occupier of land give written notice to the administering authority if they become aware of the following:

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the land (notice must be given within 20 business days).

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term ‘duty to notify’.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority – on the nominated day; or

b) if the authority states a day or an event for it to take effect – on the stated day or when the stated event happens; or

c) otherwise – on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Planning Act 2016* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.

Wind farm

This environmental authority only provides approval under the *Environmental Protection Act 1994.* Any other required approvals must be sought from relevant parties prior to commencement of activities.

Signature	1 July 2025 Date

Giles Bezzina
Department of the Environment, Tourism, Science and Innovation
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Minerals Business Centre
PO Box 7230, Cairns QLD 4870
Phone: (07) 4222 5352
Email: ESCairns@detsi.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443).

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department, and other State and Federal Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Obligations under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

Matters of national environmental significance (MNES) are regulated under the Commonwealth EPBC Act rather than under state legislation. You may need to submit a referral if your project potentially impacts any matters protected under the EPBC Act. For more information on self-assessments, and referral and assessment processes please visit the Department of Climate Change, Energy, the Environment and Water webpage, https://www.dcceew.gov.au/environment/epbc/advice.

Obligations under the *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003* (the Cultural Heritage Acts)

The Cultural Heritage Acts require anyone who carries out a land-use activity to exercise a duty of care. This ‘duty of care’ means land users must take all reasonable and practicable measures to ensure their activity does not harm Aboriginal or Torres Strait Islander cultural heritage, and applies to any activity where Aboriginal or Torres Strait Islander cultural heritage is located. For more information on your obligations under this legislation, please visit the Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism webpage at, https://www.tatsipca.qld.gov.au/.

Conditions of environmental authority

This **environmental authority** incorporates the following schedules:

Schedule A - General
Schedule B - Air
Schedule C - Water
Schedule D - Regulated Structures
Schedule E - Sewage Treatment
Schedule F - Noise and Vibration
Schedule G - Non-Mineral Waste
Schedule H - Mineral Waste
Schedule I - Land and Rehabilitation
Schedule J – Wind Farm (Renewable Energy Project)
Schedule K - Definitions
Schedule L – Figures

Schedule A – General

Activity

A1 This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.

A2 In carrying out the mining activity the holder of this environmental authority must comply with Schedule A – Table 1 (Authorised Mining Activities) and Schedule L – Figure 1a (Project Infrastructure Layout – Mine Infrastructure Area), Schedule L – Figure 1b (Project Infrastructure Layout – TSF and Accommodation Village) and Schedule L - Figure 1c (Project Infrastructure Layout – Support Infrastructure). The EA holder must:

(a) Submit to the administering authority all TBA values for the 'Renewables' Mine Domain in accordance with and at the same time as the Project Layout Plan required in accordance with condition J2 of this environmental authority.

Schedule A – Table 1 (Authorised Mining Activities)

Mine Domain	Mine Feature Name	Location (GDA94 MGA z54)		Maximum Disturbance Area (hectares)	Constraints
		Easting	Northing		
Ancillary Infrastructure and Services	Accommodation Village and sewage treatment plant	410282	7762986	24.3	
	Pipeline and Accommodation Village Road	-	-	6	
	Communications tower	410265	7762672	0.06	
	Powerline	-	-	65.72	
	Raw water pipeline	-	-	12.7	
	Roads and Tracks	-	-	66.4	
	Groundwater infrastructure	-	-	0.54	
	Emergency response training area			0.5	
Borrow Pits & Stockpiles	Borrow Pit/Topsoil Stockpile, Borrow Pit A, and Topsoil Stockpile A	411283	7759760	16.98	
	Borrow Pit B	411092	7760669	2.5	
	Borrow Pit C1	411171	7761447	1.1	
	Borrow Pit C2	411154	7761268	1.8	
	Access Road Borrow Pit(s)	-	-	5	
	TSF Borrow Pit A	408393	7762874	4.1	
	TSF Borrow Pit B	408405	7763128	4.2	

Mine Domain	Mine Feature Name	Location (GDA94 MGA z54)		Maximum Disturbance Area (hectares)	Constraints
		Easting	Northing		
	TSF Stockpile	408448	7762900		
	Topsoil Stockpile B	412073	7761399	9.7	
	Spoil Stockpile 1	411945	7760871	0.65	
	Spoil Stockpile 2	411873	7761152	1.5	
Dams and Diversion Structures	Diversion Drains	-	-	2	
	Stage 1 PAF PAD Run Off Dam	411483	7760727	2.25	Dam constructed in accordance with conditions specified in Schedule D of this environmental authority.
	Stage 2 PAF PAD Run Off Dam	411271	7760924	11.7	
	Underground Mine Water Collection Dam	411632	7760659	0.65	
	STP Dam Stage 1	412389	7759783	0.9	
	STP Dam Stage 2	412328	7759645	4	
	ROM Area Run Off Dam	412175	7761066	3.7	
	Raw Water Dam	412153	7760929	1.8	
	Sediment Dam A	412172	7760845	1.1	
	Process Plant Run Off Dam	412176	7760751	1.5	
	Containment Dam	412091	7760745	0.6	
	Mine Workshop Run Off Dam	411989	7760058	0.6	
	Sediment Dam C	412224	7750313	4.5	
	Sediment Dam D	412336	7759989	3.5	
	Sediment Dam F	411592	7760144	1.4	
	Sediment Dam G	411459	7761074	1.4	
Exploration	Drill Pads	-	-	10	Exploration activities must be consistent with conditions A33 and A34 of this environmental authority
Mineralised Waste	NAF waste rock dump	411393	7760288	8	Maximum disturbance area relates to the disturbance authorised during the operation of the mine. Only non-acid forming waste rock is authorised to be placed in NAF waste rock dump. Where possible non-acid forming waste rock
	NAF waste rock dump bund	-	-		
	PAF waste rock dump (Stage 1)	411492	7760604	1.6	

Mine Domain	Mine Feature Name	Location (GDA94 MGA z54)		Maximum Disturbance Area (hectares)	Constraints
		Easting	Northing		
	PAF waste rock dump (Stage 1 Extension)	411270	7760598	1.1	will be used in rehabilitation and only in accordance with the conditions of this environmental authority. Maximum disturbance area relates to the disturbance authorised during the operation of the mine. All potentially acid forming rock must be returned to the void at the end of mine life.
	PAF waste rock dump (Stage 2)	411512	7760518	9.5	
Mining and Processing Area	West Laydown Area	411157	7760276	10.3	
	Waste Transfer Station	411476	7759611	0.25	
	Explosives magazine	411554	7759189	0.6	
	Fuel Storage	411958	7760396	0.2	
	Temporary Waste Laydown	412193	7759618	1	
	Construction Laydown, Warehouse, Mobile Equipment Laydown and Core Shed	-	-	6.8	
	North decline	411699	7760952	1	
	South decline	411813	7760628	1	
	Ventilation shaft 1	411582	7761135	0.05	
	Ventilation shaft 2	411532	7761107	0.05	
	Ventilation shaft 3	411590	7761068	0.05	
	Ventilation shaft 4	411775	7760549	0.05	
	Ventilation shaft 5	411801	7760484	0.05	
	Ventilation shaft 6	411866	7760294	0.05	
	Ventilation shaft 7	411834	7760290	0.05	
	Ventilation shaft 8	411878	7760205	0.05	
	Ventilation shaft 9	411466	7761320	0.54	
	Run of Mine (ROM) Pad	411882	7760964	3.8	
	ROM Haul Roads	-	-	3.6	
	Processing Plant and Conveyor Area	411986	7760590	14.3	
	Switchyard 1	412170	7760656	1.04	

Mine Domain	Mine Feature Name	Location (GDA94 MGA z54)		Maximum Disturbance Area (hectares)	Constraints
		Easting	Northing		
Tailings Storage Facility (TSF)	Switchyard 2	41878	7760073	0.99	
	Exploration camp and Camp Expansion Works	412173	7760344	3	
	Sewerage Treatment Plants	412060	7760070	0.18	
	Workshop, Vehicle Washdown and Maintenance Area	411963	7760191	3.8	
	Office & Administration Buildings	412232	7760234	3.6	
	Laydown east	411582	7760535	6.47	
	TSF and Seepage Collection Pond	409197	7763517	207	Dam constructed in accordance with conditions specified in Schedule D of this environmental authority
	TSF Pipelines and Roads	-	-	5.7	
Renewables	Cleared pads	TBA	TBA	0.2	Related to windfarm geotechnical investigation works
	Wind Turbine Generator (WTG) pad 1			3.09	
	WTG pad 3			3.64	
	WTG pad 4			5.58	
	WTG pad 5			2.91	
	WTG pad 6			2.68	
	WTG pad 7			4.53	
	WTG pad 8			2.58	
	WTG pad 9			2.28	
	Meteorological masts			0.99	
	Laydown West	TBA	TBA	6.3	
	Access Roads	TBA	TBA	32.32	

A3 Notwithstanding condition A2, infrastructure that has the potential to contaminate groundwater must not be constructed within fifty (50) metres of Silvermine Creek or North Creek.

A4 Access to the licensed place via land authorised for that purpose by the *Mineral Resources Act 1989* is subject to the conditions of this environmental authority.

Hazardous substances

A5 The storage, handling and use of cyanide on site is not permitted.

Maintenance of Measures, Plant and Equipment

A6 The holder of this environmental authority must:

(a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;

(b) maintain such measures, plant and equipment in a proper condition; and

(c) operate such measures, plant and equipment in a proper manner.

A7 No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration increases, or is likely to increase, the risk of environmental harm.

Monitoring and Reporting

A8 Any management or monitoring plans, systems, programs or reports required to be developed and implemented by a condition of this environmental authority must be reviewed for effectiveness in minimising the likelihood of environmental harm every 3 years and amended immediately if required, unless otherwise specified in the conditions of this environmental authority. The review must be documented and completed by an appropriately qualified person.

A9 Monitoring records or reports required under this environmental authority must be maintained and be readily accessible at the licensed place or at another location agreed to in writing by the administering authority for a period of not less than seven (7) years.

A10 The holder of this environmental authority must upon request from the administering authority, supply monitoring records, plans and reports in the form and by the means requested by the administering authority within five (5) business days.

A11 All monitoring referred to in this environmental authority must be undertaken by an appropriately qualified person using monitoring equipment that is accurately calibrated and maintained in accordance with the manufacturer's specifications.

A12 All analyses and tests required to be conducted under this environmental authority must be carried out by a laboratory that has NATA accreditation for such analyses and tests, except as otherwise authorised by the administering authority.

A13 The holder of this environmental authority must make reasonable efforts to provide safe and all-weather access to all monitoring locations required under this environmental authority where practicable and safe to do so. This includes:

(a) providing appropriate site infrastructure to gain safe all-weather access to monitoring locations during reasonably foreseeable events, where practicable and safe to do so; and

(b) developing and implementing contingency plans to facilitate sampling during extreme events where provision of site infrastructure is not safe or practical.

Risk Management

A14 The holder of this environmental authority must develop and implement a risk management system for mining activities which conforms to the latest edition of the Australian Standard for Risk Management.

Emergency Response / Contingency

A15 The holder of this environmental authority must implement and maintain an emergency response/contingency plan to respond to any emergency event or incident.

A16 The emergency response/contingency plan required under condition A15 must address the following matters as a minimum:

(a) response procedures to be implemented to prevent or minimise the risk of environmental harm

arising from any emergency event or incident;

(b) response procedures to minimise the extent and duration of environmental harm caused by any emergency event or incident;

(c) the practices and procedures to be employed to restore the environment or mitigate any environmental harm caused by any emergency event or incident;

(d) the resources to be used in response to any emergency event or incident;

(e) procedures to investigate the cause of any emergency event or incident and where necessary, implement remedial actions to reduce the likelihood of recurrence of similar emergency event or incident;

(f) the provision and availability of documented procedures to staff attending any emergency event or incident to enable them to effectively respond;

(g) training of staff that will be called upon to respond to any emergency event or incident to enable them to effectively respond;

(h) timely and accurate reporting of the circumstance and nature of any emergency event or incident to the administering authority in accordance with conditions of this environmental authority;

(i) procedures for accessing monitoring points during any emergency event or incident; and

(j) procedures to notify any potentially impacted stakeholder who may be affected by the emergency event or incident.

Notification of Incidents, Exceedances and Releases

A17 The holder of this environmental authority must notify the administering authority by written notification within 24 hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.

A18 The notification in condition A17 must include, but not be limited to, the following:

(a) the environmental authority number and name of the holder of this environmental authority;

(b) the name and telephone number of the designated contact person;

(c) the location of the incident, exceedance or release;

(d) the date and time of the incident, exceedance or release;

(e) the time the holder of this environmental authority became aware of the incident, release or exceedance;

(f) where known:

(a) the estimated quantity and type of substances involved in the incident, exceedance or release;

(b) the actual or potential cause of the incident, release or exceedance; and

(c) a description of the nature and effects of the incident, exceedance or release including environmental risks and any risks to public health or livestock.

(g) any sampling conducted or proposed, relevant to the incident, exceedance or release;

(h) immediate actions taken to prevent or mitigate any further environmental harm caused by the incident, exceedance or release; and

(i) what notification of stakeholders who may be affected by the incident, exceedance or release has occurred/is being undertaken.

A19 The holder of this environmental authority must notify the occupiers or registered owners of affected land and any other potentially impacted stakeholder as soon as reasonably practicable after becoming aware of any incident, exceedance or release that has the potential to impact on environmental values or breaches any condition of this environmental authority concerning releases of contaminants to the

environment.

A120 The notification in condition A19 must include the following:

(a) the location of the incident, exceedance or release;

(b) the date and time of the incident, exceedance or release;

(c) the estimated quantity and type of any substances involved in the incident, exceedance or release;

(d) the potential impacts to environmental values caused by the incident, exceedance or release; and

(e) where there is potential impact on livestock or human health, precautionary measures that will be taken.

A21 Within ten (10) business days following the initial notification of an incident, exceedance or release, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:

(a) results and interpretation by an appropriately qualified person of any samples taken and analysed;

(b) outcomes of actions taken at the time of the incident, release or exceedance to prevent or minimise unlawful environmental harm; and

(c) outcomes of actions to prevent a recurrence of the incident, exceedance or release.

Complaints

A22 The holder of this environmental authority must record all environmental complaints received about the mining activity including the following details:

(a) name, address and contact number for complainant;

(b) time and date of complaint;

(c) reasons for the complaint;

(d) investigations undertaken;

(e) conclusions formed;

(f) actions taken to resolve complaint;

(g) any abatement measures implemented; and

(h) person responsible for resolving the complaint.

A23 The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

Community

A24 The holder of this environmental authority must establish, promote and maintain easily accessible lines of communication between residents, stakeholders and land owners, reasonably expected to be affected by the mining activity to ensure that environmental impacts are identified and managed. This must include but not be limited to the following:

(a) regular meetings with all residents, stakeholders and land owners, at intervals of not more than six (6) months; and

(b) the establishment of a consultative committee with representation open for all residents, stakeholders and land owners, that meets at regular intervals as determined by the committee.

Third Party Auditing

A25 The holder of this environmental authority must:

(a) By 1 June 2023, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority

(b) obtain further such reports at regular intervals, not exceeding three yearly, from the completion of the report referred to above

(c) provide each report to the administering authority within 90 days of its completion.

Exploration

A26 All exploration activities carried out at the licensed place must comply with each of the Standard Environmental Conditions contained in the most recent version of the *Eligibility criteria and standard conditions for exploration and mineral development projects – Version 2 – ESR/2016/1985.*

A27 Disturbance due to exploration activities in areas not scheduled to be mined within twelve (12) months must be rehabilitated in accordance with the provisions detailed in the administering authority's *Eligibility criteria and standard conditions for explorations and mineral development projects – Version 2 – ESR/2016/1985.*

A28 Where a condition of this environmental authority refers to a matter addressed in the *Eligibility criteria and standard conditions for explorations and mineral development projects. - Version 2 –ESR/2016/1985* the condition of this environmental authority prevails.

A29 Notwithstanding standard condition A13 of the *Eligibility criteria and standard conditions for explorations and mineral development projects – Version 2 – ESR/2016/1985,* the holder of the environmental authority must not carry out activities in a category A or B environmentally sensitive area. Activities involving machinery may be carried out within 2km of, but no closer than, 1km from a category A environmentally sensitive area and within 1km of, but no closer than 50 m from, a category B environmentally sensitive area.

Transition to New Standards

A30 Where a condition of this environmental authority requires compliance with a standard, guideline or relevant legislation published externally to this environmental authority and the standard, guideline or relevant legislation is amended or changed subsequent to the issues of this environmental authority the holder of this environmental authority, unless otherwise agreed to by the administrating authority, must:

(a) comply with the amended or changed standard, guideline or relevant legislation within twelve (12) months of the amendment or change being made, unless a different period is specified in the amended standard, guideline or relevant legislation; and

(b) continue to remain in compliance with the previous standard, guideline or relevant legislation until compliance with the amended or changed standard or guideline is achieved.

Regard for Comment

A31 Where comments are provided by the administering authority with respect to any plans, systems or programs required to be developed by a condition of this environmental authority then the holder of this environmental authority must have due regard to these comments.

END OF CONDITIONS FOR SCHEDULE A

Schedule B – Air

General

B1 Unless authorised by this environmental authority, the release of noxious or offensive odour, dust or any other airborne contaminant resulting from the mining activity must not cause environmental harm.

Bulk Material Handling Management

B2 The holder of this environmental authority must ensure that vehicles used for transporting bulk materials on or from the licensed place, have appropriate load preparation to prevent the spillage and/or loss of particulate matter and/or windblown dust during transport.

Air Quality – Particulate Matter

B3 The mining activity must not cause particulate matter to exceed the following levels when measured at any sensitive place or commercial place:

(a) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time monitored in accordance with:

(i) the most recent version of Australian Standard AS3580.9.6 *Determination of suspended particulate matter – PM(sub) 10(/sub) high volume sampler with size-selective inlet – Gravimetric method*; or

(ii) an alternate method of monitoring PM_{10} which complies with the performance specifications detailed in another Australian Standard for PM_{10} and agreed to in writing by the administering authority.

(b) a concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a one (1) year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 *Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method*;

(c) a concentration of arsenic with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 0.006 micrograms per cubic metre over a one (1) year averaging time monitored in accordance with:

(i) the most recent version of Australian Standard AS3580.9.6 *Determination of suspended particulate matter – PM(sub) 10(/sub) high volume sampler with size-selective inlet – Gravimetric method*; or

(ii) an alternate method of monitoring PM_{10} which complies with the performance specifications detailed in another Australian Standard for PM_{10} and agreed to in writing by the administering authority.

(d) a concentration of cadmium with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 0.005 micrograms per cubic metre over a one (1) year averaging time monitored in accordance with:

(i) the most recent version of Australian Standard AS3580.9.6 *Determination of suspended particulate matter – PM(sub) 10(/sub) high volume sampler with size-selective inlet – Gravimetric method*; or

(ii) an alternate method of monitoring PM_{10} which complies with the performance specifications detailed in another Australian Standard for PM_{10} and agreed to in writing by the administering authority.

(e) a concentration of lead suspended in the atmosphere of 0.5 micrograms per cubic metre over a one (1) year averaging time monitored in accordance with:

(i) the most recent version of Australian Standard AS/NZS3580.9.3:2003 Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method; or

(ii) an alternate method of monitoring TSP which complies with the performance specifications

detailed in another Australian Standard for TSP and agreed to in writing by the administering authority.

Note: The holder of this environmental authority may elect to monitor the concentration of arsenic and cadmium as the total metal content in total suspended particulates (TSP) when measured in accordance with the most recent version of AS/NZS3580.9.3:2003 Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method and meet the same limit as specified in condition B3.

Air Quality – Dust Deposition

B4 The holder of this environmental authority must conduct the mining activity in such a manner so as not to cause any exceedance of limits identified in Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits) at any sensitive place or commercial place.

Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits)

Air Quality Indicator	Measurement Period	Trigger Level ($\mu g/m^2/day$)	Limit ($\mu g/m^2/day$ unless specified otherwise)
Arsenic and its compounds as arsenic[4]	Annual average	4[1]	-
Cadmium and its compounds as cadmium[4]	Annual average	2[1]	-
Lead and its compounds as lead[4]	Annual average	100[1]	250[2]
Total insoluble matter (insoluble analysis and particulate matter deposition rate)[3]	Monthly average	-	$4g/m^2/month$[5,6]

1. Trigger levels based on First General Administrative Regulation Pertaining to the *Federal Emission Control Act* (Technical Instructions on Air Quality Control – TA Luft) (Table 6 page 29).
2. Air quality limit derived from World Health Organisation – Air Quality Guidelines for Europe Second Edition, 2000 (Chapter 6 page 152).
3. Monitored in accordance with the most recent version of Australian Standard AS3580.10.1 *Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method.*
4. Metals analysis is to be carried out in accordance with a methodology, sufficient to produce representative results capable of comparison against the respective limits and trigger levels.
5. Based on the New Zealand Ministry for Environment Good Practice Guide for Assessing and Managing for Environmental Effects of Dust Emissions (Table 7.1).
6. The dust deposition limit is calculated over a nominal month as per AS/NZS3580.10.1 of 2003 (or more recent editions).

B5 If monitoring indicates the maximum concentrations in condition B3 or the limits in Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits) have been exceeded at a sensitive place or commercial place as a result of the mining activity, then the holder of this environmental authority must immediately implement dust abatement measures to ensure that dust emissions generated by the mining activity no longer exceed the levels specified in condition B3 and Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits).

Note: If the holder of the environmental authority can demonstrate to the administering authority that it is not the cause of the exceedance of concentrations in condition B3 or the limits in Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits) then this condition does not apply.

B6 In the event of monitoring results showing an exceedance of any of the trigger levels or limits specified in Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits) at a sensitive place or commercial place, the holder of this environmental authority must:

(a) complete an investigation to identify the cause of the exceedance;

(b) if the investigation shows that the exceedance is not attributable to the mining activity, then no further action is required and this must be advised to the administering authority; or

(c) if the investigation shows that the exceedance is attributable to the mining activity provide a written report to the administering authority within one (1) month of the date of the monitoring results showing an exceedance, outlining:

(i) details of the investigations carried out;

(ii) details of the environmental impacts observed; and

(iii) actions taken to prevent environmental harm.

Air Quality Monitoring Program

B7 The holder of this environmental authority must implement and maintain an air quality monitoring program for the air quality indicators specified in condition B3 and Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits) at the monitoring locations and specified in Schedule B – Table 2 (Air Quality Monitoring Program) and Schedule L – Figure 2 (Air Quality Monitoring Program Monitoring Locations).

Schedule B – Table 2 (Air Quality Monitoring Program)

Monitoring Location Description	Location (GDA94 MGA z54)		Monitoring Site ID	Monitoring Frequency
	Easting	Northing		
Compliance				
Roseby Homestead	413970	7754962	EA_DG_005	For TSP, PM_{10}, arsenic, cadmium and lead: As required by condition B8. For dust deposition measured as insoluble matter: Monthly For arsenic, cadmium and lead in deposited dust: Monthly
			EA_AQ_005	
Reference				
North of Roseby Homestead and the licensed place[1]	408471	7766889	EA_DG_007	For TSP, PM_{10}, arsenic, cadmium and lead: As required by condition B8. For dust deposition measured as insoluble matter: Monthly For arsenic, cadmium and lead in deposited dust: Monthly
			EA_AQ_007	
	411918	7764933	EA_DG_008	
			EA_AQ_008	
	410576	7762936	EA_DG_009	
South of Roseby Homestead and the licenced place[1]	413110	7752939	EA_DG_006	
			EA_AQ_006	
Between Roseby Homestead and the licenced place	413589	7760259	EA_DG_001	
	412867	7758953	EA_DG_010	

1. Upwind sites must be located upwind of Roseby Homestead and the licensed place at the time of monitoring.

Note: Monitoring sites must comply with Australian Standard 3580.1.1:2007 Methods for the sampling and analysis of ambient air – Guide to siting air monitoring equipment.

B8 Air quality monitoring for TSP, PM_{10}, arsenic, cadmium and lead must be carried out on a campaign basis for at least seven (7) consecutive days on four (4) separate occasions in May, July, September and November each year.

B9 Notwithstanding condition B7, the holder of this environmental authority must implement and maintain a dust deposition monitoring program to monitor the deposition and airborne concentrations of contaminants in dust generated by the mining activity in the receiving environment and the actual and potential environmental impacts as a result. At a minimum, the program must include:

(a) a description of the sources, locations and predicted quantity of contaminants in air emissions generated by each mining activity carried out at the licensed place;

(b) suitable monitoring locations, nominated by an appropriately qualified person, for monitoring of dust deposition and heavy metals in dust, associated with dust generating mining activities as specified in Schedule B – Table 3 (Air Quality Monitoring Program – Dust Deposition);

(c) collection of contaminants in dust deposition samples at the monitoring locations and at the frequency specified in Schedule B – Table 3 (Air Quality Monitoring Program – Dust Deposition;

(d) annual assessment of the environmental harm caused by dust deposition on the receiving environment and performance against air quality trigger levels and limits specified in Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits); and

(e) a sufficient number of impact monitoring and reference locations, constructed in accordance with Australian Standard 3580.1.1:2007 *Methods for the sampling and analysis of ambient air – Guide to siting air monitoring equipment*, to enable scientifically justifiable conclusions on the level of impact from mining activity.

Schedule B – Table 3 (Air Quality Monitoring Program – Dust Deposition)

Monitoring Location Description	Monitoring Site ID	Location (GDA94 MGA z54)		Monitoring Frequency
		Easting	Northing	
1km east of the site, along the main access road	EA_DG_001	413589	7760259	Monthly
Approximately 700m NE of the Roseby Homestead	EA_DG_005	413970	7754962	Monthly
Approximately 1.5km SE of the Roseby Homestead	EA_DG_006	413110	7752939	Monthly
Far northern end of the lease, at the northern end of the Knapdale Range	EA_DG_007	408471	7766889	Monthly
North-eastern corner of the mining lease area	EA_DG_008	411918	7764933	Monthly
Between the mine site and the permanent accommodation village	EA_DG_009	410576	7762936	Monthly
Approximately 2km SE of the mine site.	EA_DG_010	412867	7758953	Monthly

1. The holder of this environmental authority must provide monitoring location description and location information to the administering authority as part of the dust monitoring program required by condition B9.
2. Monitoring sites must comply with Australian Standard 3580.1.1:2007 *Methods for the sampling and analysis of ambient air – Guide to siting air monitoring equipment*

Air Quality Monitoring Requirements

B10 Samples taken for air quality monitoring specified in this environmental authority must be collected and analysed in accordance with the requirements of the administering authority's latest edition of the *Air Quality Sampling Manual*, or more recent editions or supplements to that document as are published by the administering authority, unless otherwise agreed by the administering authority in writing.

Concentrate Management

B11 All mineral concentrate must be stored, stockpiled and loaded in fully enclosed buildings.

B12 Buildings or structures used for the storage, stockpiling and loading of mineral concentrate must incorporate the following dust control measures as a minimum:

(a) all necessary openings and vents in the buildings or structures (other than doorways and access ways) must be covered with filter media or other equivalent dust control measures;

(b) cladding of the buildings or structures must be securely affixed and free of any unnecessary holes;

(c) all doorways and access ways in the buildings or structures must be fitted with doors;

(d) all doors in the buildings or structures must remain closed except when being used for access or egress;

(e) all doors, doorways and access ways in the buildings or structures must be maintained in such a condition that doors, when closed, provide a seal against the release of mineral concentrate to the receiving environment;

(f) transfer of mineral concentrate to vehicles and containers must be carried out in a manner that minimises the likelihood of any release of mineral concentrate to the atmosphere and waters; and

(g) transfer of mineral concentrate along conveyor belts must be designed and operated in a manner that minimises, using best practice technology and design, the release of mineral concentrate to the atmosphere and waters.

B13 The interior of all mineral concentrate storage, stockpiling and loading buildings must be maintained under negative air pressure sufficient to minimise, using best practice technology and design, the release of concentrate from the buildings or structures.

B14 The buildings and structures in place at the licensed place for the storage, stockpiling and loading of mineral concentrate must be constructed and maintained to withstand a Category 2 cyclone.

B15 A wash bay for mobile equipment must be installed as part of the mineral concentrate storage facility, for cleaning machinery before exit from the area and to prevent the movement of mineral concentrate outside the building.

House-keeping Procedure

B16 A whole of site housekeeping procedure must be developed and implemented which must include, but not be limited to:

(a) the completion of periodic inspections of the licensed place including all structures, plant, equipment and trafficked surfaces to identify and remove exposed mineral concentrate that may be mobilised by wind, water or equipment movement; and

(b) an ongoing cleaning and maintenance schedule to minimise any potential release of mineral concentrate and to ensure there is no build-up of mineral concentrates over time in areas where it may be mobilised.

Weather Station

B17 The holder of this environmental authority must establish and maintain a permanent meteorological station to continuously measure and record wind speed, wind direction, temperature and daily rainfall volume.

B18 The permanent meteorological station must be installed in accordance with the latest edition of the Bureau of Meteorology guideline *Observation Specifications No.2013.1 – Guidelines for the positioning and exposure of meteorological instruments and observing facilities*.

B19 The holder of this environmental authority must record, compile, evaluate and keep all monitoring records obtained from the permanent automatic meteorological station.

END OF CONDITIONS FOR SCHEDULE B

Schedule C – Water

General

C1 Contaminants that will, or have the potential to cause environmental harm, must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.

C2 The maintenance and cleaning of vehicles and any other equipment or plant must not be carried out in areas from which contaminants can be released into any waters, roadside gutter or stormwater drainage system.

C3 Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.

C4 All determinations of water quality/sample analysis required under a condition of this environmental authority must be:

(a) made in accordance with methods prescribed in the latest edition of the latest edition of the administering authority's *Water Quality Sampling Manual*;

(b) collected from the monitoring locations identified within this environmental authority, within two (2) hours of each other where possible; and

(c) carried out on representative samples.

C5 The release of contaminants directly or indirectly to waters must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, or litter.

C6 The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format when requested:

(a) the date and time when the sample was taken;

(b) the monitoring point where the sample was taken;

(c) the measured or estimated daily quantity of the contaminants released from all release points;

(d) the release flow rate at the time of sampling for each release point; and

(e) the results of all monitoring and details of any exceedances of the conditions of this environmental authority.

Contaminant Release to Waters

C7 The release of contaminants to waters must only occur from the release points specified in Schedule C – Table 1 (Release Points) and depicted in Schedule L – Figure 3 (Release Points and Water Storage Monitoring Locations).

Schedule C – Table 1 (Release Points)

Release Point	Location (GDA94 MGA z54)		Contaminant Source, Location and Description of Release Point	Receiving Waters Description
	Easting	Northing		
Sediment Dam C	412210	7760305	Stormwater runoff from the existing construction camp, the change house and car park, the administration building and data centre, the sewerage treatment plan, water treatment plant and the vehicle wash bay – from the Sediment Dam C spillway	Unnamed tributary of Silvermine Creek
Sediment Dam D	412346	7759965	Stormwater runoff from the site services lay-down and storage area, Gatehouse and security, emergency services, temporary generators, core yard and core shed, and laydown area – from the Sediment Dam D spillway	Silvermine Creek
Sediment Dam F	411642	7760116	Stormwater runoff from the NAF Waste Rock Dump and stormwater runoff from the clean water catchment between mine workshop area and the NAF waste rock dump – from the Sediment Dam F spillway	Silvermine Creek
Sediment Dam G	411491	7761147	Stormwater runoff from the PAF waste rock dumps, Stages 1 and 2, and the clean water catchments adjacent to the PAF waste rock dumps – from the Sediment Dam G spillway	North Creek
Stage 2 PAF Pad Run Off Dam	411198	7761055	Stormwater runoff from the PAF waste rock dump – from the PAF Pad Run Off Dam spillway	North Creek
STP Dam Stage 1	412426	7759746	Treated effluent from the project STPs – from the STP Dam spillway	Silvermine Creek
STP Dam Stage 2	412403	7759586	Treated effluent from the project STPs – from the STP Dam Stage 2 spillway	Silvermine Creek
ROM Area Run Off Dam	412223	7761099	Stormwater runoff from ROM Pad, crusher and conveyor – from the ROM Area Run Off Dam spillway	North Creek
Process Plant Run Off Dam	412201	7760797	Stormwater from processing plant and reagent shed (roofed and bunded), as well as the warehouse and reagent storage – from the Process Plant Run Off Dam spillway	North Creek
Mine Workshop Run Off Dam	411980	7760028	Stormwater from workshop, fuel depot, go-line and light vehicle parking area – from the Mine Workshop Run Off Dam spillway	Silvermine Creek
Raw Water Dam	412220	7760903	Raw water from Lake Julius – from the Raw Water Dam spillway	North Creek
Sediment Dam A	412191	7760848	Stormwater runoff from the clean water catchment between the process plant area and the PAF waste rock dump	North Creek

Release Point	Location (GDA94 MGA z54)		Contaminant Source, Location and Description of Release Point	Receiving Waters Description
	Easting	Northing		
Tailings Storage Facility (TSF)	408976	7763597	Water release from the TSF	Cabbage Tree Creek
Seepage Collection Pond	408920	7763507	Release from the TSF	Cabbage Tree Creek

C8 The release of contaminants to waters from the authorised release points must be monitored at the locations specified in Schedule C – Table 1 (Release Points) for each quality characteristic and at the frequency specified in Schedule C – Table 2 (Contaminant Release Limits).

C9 The release of contaminants to waters must not exceed the contaminant limits stated in Schedule C – Table 2 (Contaminant Release Limits).

Schedule C – Table 2 (Contaminant Release Limits)

Quality Characteristic[1]	Unit	Contaminant Limit	Monitoring Frequency
Hardness	mg/L	For interpretation purposes only	Event based sampling of release events: • One sample must be taken within twelve (12) hours of a release event commencing. A second sample must be taken between twelve (12) and twenty four (24) hours after the release event commences. • Where a release event has a duration of twenty four (24) hours or greater, samples must be taken daily for one • (1) week, and once a week thereafter until release event ceases.
pH	pH unit	5.5[2] (minimum) 9.0[9] (maximum)	
EC	µS/cm	1000	
Total Suspended Solids	mg/L	Reference[3] value plus 10%[4]	
Aluminium	mg/L	5[5]	
Arsenic[6]	mg/L	0.5[5]	
Sulphate	mg/L	1000[5]	
Fluoride	mg/L	2[5]	
Cadmium	mg/L	0.01[5]	
Copper	mg/L	1[5]	
Lead	mg/L	0.1[5]	
Manganese	mg/L	Reference[3] value plus 10%[4]	
Nickel	mg/L	1[5]	
Zinc	mg/L	20[5]	

[1] All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered) concentrations.

[2] Based on Environmental Management Plan for the Dugald River Project dated February 2012.

[3] Reference sites defined in Schedule C – Table 4 (Receiving Water and Stream Sediment Reference Sites and Downstream Monitoring Points).

[4] Contaminant limit based on quality of upstream reference site sampled at the time of release plus 10%.

[5] Contaminant limit based on ANZECC (2000) stock water quality guidelines.

[6] Speciated arsenic concentrations for As (III) and As (V) only required if 13 µg/L is exceeded - note that the sample bottle requirements for As (total species) and As (speciated) may differ.

[9] Based on TropWATER Technical Memo – Recommended amendments to Dugald River Mine Environmental Authority EPML00731213 dated January 2020.

NOTES:

(a) Where release(s) or flow event(s) occur simultaneously only one (1) set of samples are required to be taken.

(b) All dissolved (filtered) samples must be obtained from field filtered grab samples.

(c) Grab sampling is the preferred method for sample collection.

Stream Flow Monitoring

C10 The holder of this environmental authority must install, operate and maintain a stream flow gauging station to determine and record stream flows at the locations upstream of each release point, as specified in Schedule C – Table 3 (Contaminant Release during Flow Events) and Schedule L – Figure 4 (Stream Flow Gauge, Receiving Waters and Stream Sediment Monitoring Locations) for any receiving water into which a release occurs.

C11 Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow specified as minimum flow in Schedule C – Table 3 (Contaminant Release during Flow Events) and at the contaminant release point(s) specified in Schedule C – Table 1 (Release Points) and shown in Schedule L – Figure 4 (Stream Flow Gauge, Receiving Waters and Stream Sediment Monitoring Locations).

Schedule C – Table 3 (Contaminant Release during Flow Events)

Receiving Water Description	Release point	Gauging station description[1]	Location (GDA94 MGA zone 54)		Minimum Flow in Receiving Water Required for a Release Event	Flow Recording Frequency
			Easting	Northing		
Silvermine Creek	Sediment Dam F	SC-29 (MS5)	411465	7760021	As specified in condition C12	Continuous (minimum daily)
	Mine Workshop Run Off Dam					
	Sediment Dam D					
	Sediment Dam C					
	STP Dam Stage 1					
	STP Dam Stage 2					
North Creek	Stage 2 PAF Pad Run Off Dam	SN-15 (MS8)	411282	7761188		
	Sediment Dam A					
	ROM Area Run Off Dam					
	Process Plant Run Off Dam					
	Sediment Dam G					
	Raw Water Dam					

[1] Codes in parentheses are provided for consistency with the Receiving Environment Monitoring Program and the Dugald River Project Baseline Limnological Data Report (2012-2014).

Note: The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measure, e.g.: ≥5m³/sec

C12 At the time of release from the authorised release points specified in Schedule C – Table 3 (Contaminant Release during Flow Events) there must be natural flow in the respective receiving water at a sufficient volume to allow for dilution of the release to comply with the contaminant limits associated with the respective receiving waters.

C13 The daily quantity of water and contaminant load released from each release point specified in Schedule C – Table 1 (Release Points) must be measured and recorded.

Onsite Water Storages

C14 Onsite water storages must be monitored in accordance with the Receiving Environment Monitoring Program required by condition C23.

C15 The holder of this environmental authority must implement measures to prevent access to the following dams by livestock and minimise access by native fauna: Sediment Dam A, Sediment Dam F, Sediment Dam G, Stage 1 PAF PAD Run Off Dam, Stage 2 PAF PAD Run Off Dam, Underground Mine Water Collection Dam, ROM Area Run Off Dam, Raw Water Dam, Process Plant Run Off Dam, Containment Dam, Mine Workshop Run Off Dam and STP Dam Stages 1 and 2.

Receiving Waters Monitoring

C16 Waters at the monitoring points specified in Schedule C – Table 4 (Receiving Water and Stream Sediment Reference Sites and Downstream Monitoring Points) and Schedule L – Figure 4 (Stream Flow Gauge, Receiving Waters and Stream Sediment Monitoring Locations) must be monitored for each quality characteristic and at the frequency stated in Schedule C – Table 5 (Receiving waters trigger levels and contaminant limits).

Schedule C – Table 4 (Receiving Water and Stream Sediment Reference Sites and Downstream Monitoring Points)

Monitoring Point[1]	Description	Location (GDA94 MGA Zone 54)	
		Easting	Northing
Interpretative Sites			
SC-08 (MS5 Ref)	Silvermine Creek – upstream of processing plant area	410892	7759982
SN-05 (MS8 Ref)	North Creek – upstream of processing plant area	410893	7761256
CT3-08 (MS2)	Un-named tributary of Cabbage Tree Creek – West of Knapdale Ranges on the northwest boundary, downstream of the tailings storage facility (TSF)	408063	7763376
MS5 (SC-29)	Un-named tributary of Silvermine Creek – South of processing plant area, east of the Knapdale Ranges, downstream of the processing plant area	412689	7760035
UT1-06 (MS6 Ref)	Un-named tributary of Dugald River - East of the Knapdale Ranges on the south eastern boundary	412495	7758628
SN-15 (MS8)	North Creek – Downstream of processing plant on the boundary of the mining lease	412043	7761203
SN-23	North Creek – Downstream of processing plant, and upstream of	413842	7761258

Monitoring Point[1]	Description	Location (GDA94 MGA Zone 54)	
		Easting	Northing
(MS9)	confluence with Silvermine Creek		
SC-38 (MS10)	Un-named tributary of Silvermine Creek – East of processing plant area, downstream of the Process Plant Run off Dam overflows and within access road easement	413453	7760754
Reference Sites[2, 3]			
DR-10	Dugald River upstream of unnamed tributary (REMP waterway designation UT1)	414144	7759328
DR-14	Dugald River mine site access bridge, downstream of UT1 and upstream of Silvermine Creek confluence	414431	7760405
CC-05	Cabbage Tree Creek, upstream of the tributary which drains the TSF (REMP waterway designation CT3)	406375	7763485
Downstream Monitoring Points			
DR-18 (Downstream compliance site for DR-10 and DR14)	Dugald River downstream of Silvermine Creek (the upstream end of Longamundi Waterhole, possibly within the mixing zone associated with Silvermine Creek)	414660	7761171
DR-22 (Downstream compliance site for DR-10 and DR14)	Dugald River downstream of Silvermine Creek (the downstream end of Longamundi waterhole, and likely downstream of the Silvermine Creek mixing zone)	415275	7762341
CC-15 (Downstream compliance site for CC-05)	Cabbage Tree Creek downstream of the TSF (the closest waterhole to the TSF that retains water long enough to sustain seasonal aquatic communities, and the only accessible point on the creek during wet weather).	407593	7768969

[1] Codes in parentheses are provided for consistency with historical site names.

[2] Reference sites must:

(a) be from the same bio-geographic and climatic region;

(b) have similar geology, soil types and topography;

(c) contain a range of habitats similar to those at the test sites;

(d) have a similar flow regime;

(e) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site; and

(f) the data from upstream reference monitoring points must not be used where they are affected by releases from other mines.

[3] Reference sites must comply with the criteria specified in ANZECC 2000.

Schedule C – Table 5 (Receiving waters trigger levels and contaminant limits)

Quality Characteristic[1]	Unit	Trigger Level[1,10]	Contaminant Limit[1,10,12]	Monitoring Frequency
Hardness ($CaCO_3$)	mg/L	For interpretation purposes		Sites on tributaries of Dugald River: Sample daily for the first two days when releases or stream flows commence at interpretative sites. If releases or flows at interpretative sites persist, sample weekly until flow ceases. Dugald River Sites: Sample Dugald River sites daily while there is flows at DR-14, and daily for one week after cessation of flows at SC-38 and SN-23. Sample monthly if flows are present in Dugald River during the wet season. Cabbage Tree Creek sites: Sample CT3-08, CC-05 and CC-15 daily when flows are present at CT3-08 and sample CC-05 and CC-15 daily for two days after flows at CT3-08 cease. Sample CC-05 and CC-15 weekly if flows are present.
pH	pH units	6.0 (minimum) 8.6[13] (maximum)	5.5 (minimum) 9.0[13] (maximum)	
Electrical conductivity	µS/cm	435 or 80th percentile of reference whichever is higher	1000	
Total Suspended Solids	mg/L	For interpretation purposes		
Sulfate	mg/L	77 [MMG Dugald River] or 80th percentile of reference whichever is higher	400[4]	
Fluoride	mg/L	80th percentile of reference	2[3] or 95th percentile of reference[10] whichever is lower	
Aluminium (dissolved)	mg/L	0.055[2] or 80th percentile of reference whichever is higher	95th percentile of reference[10]	
Aluminium (total)	mg/L	For interpretation purposes		
Arsenic[8] (dissolved)	mg/L	0.013[2] or 80th percentile of reference whichever is higher	95th percentile of reference[10]	
Arsenic (total)	mg/L	-	0.5[3]	
Cadmium (dissolved)	mg/L	0.0002[2] or 80th percentile of reference whichever is higher	95th percentile of reference[10]	
Cadmium (total)	mg/L	-	0.005[4]	
Copper (dissolved)	mg/L	0.0014[2] or 80th percentile of reference whichever is higher	95th percentile of reference[10]	
Copper (total)	mg/L	-	1[4]	

Quality Characteristic[1]	Unit	Trigger Level[1,10]	Contaminant Limit[1,10,12]	Monitoring Frequency
Lead (dissolved)	mg/L	0.0034[2] or 80th percentile of reference whichever is higher	95th percentile of reference[10]	
Lead (total)	mg/L	-	0.05[4]	
Manganese (dissolved)	mg/L	1.9[2] or 80th percentile of reference whichever is higher	95th percentile of reference[10]	
Manganese (total)	mg/L	For interpretation purposes.		
Nickel (dissolved)	mg/L	0.011[2] or 80th percentile of reference whichever is higher	95th percentile of reference[,10]	
Nickel (total)	mg/L	-	1[3]	
Zinc (dissolved)	mg/L	0.008[2] or 80th percentile of reference whichever is higher	95th percentile of reference[10]	
Zinc (total)	mg/L	-	20[3]	

[1] All metals and metalloids must be measured as both 'total' (from analysis of an unfiltered sample) and 'dissolved' (from analysis of a field filtered sample). All trigger levels are based on dissolved metal concentrations.

- Metals concentrations may be adjusted to the site-specific hardness in accordance with ANZECC 2000 (Section 3.4.3 and Table 3.4.3) as appropriate.
- If a filterable result exceeds the applicable trigger value, further analysis may be performed to quantify the dissolved component of the filtrate.

[2] Based on ANZG (2018).

[3] Based on ANZECC/ARMCANZ (2000) Table 4.3.2 for livestock drinking water.

[4] Based on ANZECC/ARMCANZ (2000) Table 5.2.3 for recreational purposes.

[8] Speciated arsenic concentrations for As (III) and As (V) only required if 13 mg/L is exceeded - note that the sample bottle requirements for As (total species) and As (speciated) may differ.

[9] Site-specific trigger levels and contaminant limits for water quality (80th and 95th percentile of reference site concentration) must be calculated in accordance with QWQG (2009) and ANZECC (2000) methodology if sufficient monitoring data is available. The environmental authority holder must maintain a database documenting all relevant water quality monitoring data and calculation of 80th/95th percentiles adopted as water quality trigger levels and contaminant limits.

[10] The contaminant limit '95th percentile of reference' is not applicable where the 95th percentile of reference site concentration is below the specified trigger level for the respective Quality Characteristic.

[11] Reference site concentration determined from reference sites specified in Schedule C – Table 6 (Receiving Water and Stream Sediment Reference Sites and Downstream Monitoring Points).

[12] Compliance at DR-18 and DR-22 is assessed when surface flows are present at either interpretive site SC-38 or SN-23

[13] Based on TropWATER Technical Memo – Recommended amendments to Dugald River Mine Environmental Authority EPML00731213 dated January 2020.

Note: The method of sampling of waters must comply with the latest edition of the administering authority's Water Quality Sampling Manual.

C17 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Schedule C – Table 5 (Receiving waters trigger levels and contaminant limits) the holder of this environmental authority must compare the downstream results to the reference site results in the receiving waters and:

(a) where the downstream result is the same or a lower value than the reference site value for the quality characteristic during the monitoring event then no action is to be taken; or

(b) where the downstream results exceed the reference site complete an investigation in accordance with the ANZECC and ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:

(i) details of the investigations carried out;

(ii) details of the environmental impacts observed; and

(iii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with clause (b) of this condition, then no further reporting is required for subsequent trigger events for that quality characteristic within the three (3) month investigation period.

C18 The release of contaminants must not result in an exceedance of contaminant limits stated in Schedule C – Table 5 (Receiving waters trigger levels and contaminant limits) at the downstream monitoring points specified in Schedule C – Table 4 (Receiving Water and Stream Sediment Reference Sites and Downstream Monitoring Points).

Stream Sediment

C19 Sediment quality of receiving waters and reference waters must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) at the monitoring locations defined in Schedule C – Table 4 (Receiving Water Reference Sites and Downstream Monitoring Points) and identified on Schedule L – Figure 4 (Stream Flow Gauge, Receiving Waters and Stream Sediment Monitoring Locations) and for the parameters defined in Schedule C – Table 6 (Stream Sediment Trigger Levels and Contaminant Limits).

Schedule C – Table 6 (Stream Sediment Trigger Levels and Contaminant Limits)

Parameter[1]	Trigger Level	Contaminant Limit
Arsenic (mg/kg)	20[3] or reference[2], whichever is higher	70[4] or 3 times the reference[2], whichever is higher
Cadmium (mg/kg)	1.5[3] or reference[2], whichever is higher	10[4] or 3 times the reference[2], whichever is higher
Copper (mg/kg)	65[3] or reference[2], whichever is higher	270[4] or 3 times the reference[2], whichever is higher
Lead (mg/kg)	50[3] or reference[2], whichever is higher	220[4] or 3 times the reference[2], whichever is higher
Manganese (mg/kg)	For interpretation purposes	
Nickel (mg/kg)	21[3] or reference[2], whichever is higher	52[4] or 3 times the reference[2], whichever is higher
Zinc (mg/kg)	200[3] or reference[2], whichever is higher	410[4] or 3 times the reference[2] whichever is higher
Particle size distribution	For interpretation purposes	

[1] All samples must be sieved to the sand fraction (63 – 2000µm) prior to analysis.

[2] Reference sites as specified in Schedule C – Table 4 (Receiving Water and Stream Sediment Reference Sites and Down Stream Monitoring Points).

[3] ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments.

[4] ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediments.

[5] Analysis for metals/metalloids concentrations in sediment must be conducted on the <2mm fraction of the sample and measured as a dilute acid extractable concentration in a manner consistent with the Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines, CSIRO (May 2013). Metals and metalloids concentrations in the <63um fraction must be performed for interpretative purposes.

Note: Where compliance monitoring results are compared with reference site monitoring results, data must be normalised to account for any difference in particle size distribution.

C20 Releases of contaminants from the mine must not result in an exceedance of sediment contaminant limits stated in Schedule C – Table 6 (Stream Sediment Trigger Levels and Contaminant Limits).

C21 If quality characteristics of the sediments exceed any of the trigger levels specified in Schedule C – Table 6 (Stream Sediment Trigger Levels and Contaminant Limits), the holder of this environmental authority must compare the results of the downstream site to the data from reference monitoring sites and:

(a) if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; or

(b) if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC and ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:

(i) details of the investigations carried out;

(ii) details of the environmental impacts observed; and

(iii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with clause (b) of this condition, then no further reporting is required for subsequent trigger events for that quality characteristic within the three (3) month investigation period.

C22 All stream sediment sampling and analysis must be undertaken using the methods documented in the MMG Dugald River Project Baseline Limnological Data Report (2012-2014).

Receiving Environment Monitoring Program

C23 The environmental authority holder must develop and implement a Receiving Environment Monitoring Program to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the Receiving Environment Monitoring Program, the receiving environment is the waters of Cabbage Tree Creek, Silvermine Creek, Silvermine Creek Tributary B, North Creek, Dugald River and connected waterways potentially influenced by the tailings storage facility. The Receiving Environment Monitoring Program should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.

C24 A Receiving Environment Monitoring Program Design Document that addresses the requirements of the Receiving Environment Monitoring Program must be prepared and made available to the administering authority upon request.

NOTE: the Receiving Environment Monitoring Program Design Document sets out, for the next monitoring period, the location, frequency and parameters to be monitored under the Receiving Environment Monitoring Program.

C25 A report outlining the findings of the Receiving Environment Monitoring Program (REMP), including all monitoring results and interpretations must be prepared annually and made available on request to the Administering Authority. This must include an assessment of background reference water quality, the

condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.

Water Management Plan

C26 A water management plan that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this environmental authority must be implemented and maintained.

C27 The water management plan must be developed by an appropriately qualified person and must include at least the following components:

(a) contaminant source study;

(b) site water balance and model;

(c) water management system;

(d) saline drainage prevention and management measures;

(e) acid rock drainage prevention and management measures;

(f) emergency and contingency planning; and

(g) monitoring and review.

C28 The holder of this environmental authority must undertake a review of the water management plan before 1 November each year to ensure that proper and effective measures, practices or procedures are in place so that the mine is operated in accordance with the conditions of this environmental authority and that environmental harm is prevented or minimised.

Site Water Balance

C29 The holder of this environmental authority must develop a site specific operational site water balance model.

C30 The water balance model must be run for a simulation period for the following:

(a) weekly during the period November to March;

(b) monthly during other periods;

(c) promptly after each rainfall event greater than fifty (50) millimetres within a twenty four (24) hour period within the relevant surface water containment area;

(d) with documentation of inputs and outputs from each run being stored and retrievable for a minimum period of one (1) year.

(e) performance in response to rainfall must be undertaken by an appropriately qualified person and

(f) assessments using the operational simulation water balance model must use a minimum of 100 years of historical rainfall data.

Saline, Acid and Metalliferous Drainage

C31 The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline, acid and/or metalliferous mine drainage as a result of the mining activity.

Erosion and Sediment Control

C32 An Erosion and Sediment Control Plan must be maintained by an appropriately qualified person and implemented for all stages of the mining activity on the licensed place to prevent or minimise erosion and the release of sediment to receiving waters and contamination of storm water.

C33 The erosion and sediment control plan must provide for at least the following functions:

(a) prevent or minimise the contamination of receiving waters and stormwater;

(b) diverting uncontaminated stormwater run-off around areas disturbed by the mining activity or where contaminants or wastes are stored or handled;

(c) contaminated stormwater runoff, incident rainfall and leachate is collected; and treated, reused, or released in accordance with the conditions of this environmental authority;

(d) roofing or minimising the size of areas where contaminants or wastes are stored or handled;

(e) erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters;

(f) procedures to ensure that erosion and sediment control structures are maintained and adequate storage is available in sediment dams in accordance with design criteria; and

(g) training of staff that will be responsible for maintenance and operations of sediment and erosion control structures.

C34 Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.

Groundwater

C35 Groundwater quality and level must be monitored at the locations and frequencies defined in Schedule C – Table 7 (Groundwater Monitoring Locations and Frequency) and Schedule L – Figure 5 (Groundwater Bore Monitoring Locations) for quality characteristics identified in Schedule C – Table 8 (Groundwater Trigger Levels and Contaminant Limits). The EA holder must:

(a) Submit to the administering authority TBA values for the Saturday Bore replacement bore by 31 October 2025.

Schedule C – Table 7 (Groundwater Monitoring Locations and Frequency)

Monitoring Point	Location (GDA94 MGA zone 54)		Monitoring frequency
	Easting	Northing	
Interpretation Bores – Depth[1]			
GWBFAB	411395	7761383	Quarterly
MB1AB	411199	7761205	
MB2AB	412187	7761185	
MB3AB	411421	7760107	
MB4AB	412744	7760042	
SHALL6AB	410983	7760929	
Compliance Bores – Depth[1] and quality			
MB2	412191	7761189	Quarterly
MB4	412749	7760041	
MB5	408537	7763364	
MB6	408287	7763224	
MB9D	408723	7763433	
MB9S	408724	7763433	
Background Bores[2] – Depth[1] and quality			

Monitoring Point	Location (GDA94 MGA zone 54)		Monitoring frequency
	Easting	Northing	
MB1	411301	7761214	Quarterly
MB3	411391	7760127	
TBA	TBA	TBA	

[1] RL must be measured to the nearest 5cm from the top of the bore casing.

[2] Reference sites must:

(a) have similar flow regime;

(b) be from the same bio-geographic and climatic region;

(c) have similar geology, soil types and topography; and

(d) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.

Schedule C – Table 8 (Groundwater Trigger Levels and Contaminant Limits)

Quality Characteristic[1]	Unit	Trigger Level[1]	Contaminant limit[2]
pH	pH unit	6.0 (minimum) 8.0 (maximum	6.0 (minimum) 9.0 (maximum)
Electrical Conductivity	µS/cm	1500[6]	2000[6]
Hardness (as $CaCO_3$)	mg/L	For interpretation purposes	
Total Dissolved Solids (TDS)	mg/L	For interpretation purposes	
Major ions (Na, Ca, K, Mg, Cl, bicarbonate, total alkalinity)	mg/L	For interpretation purposes	
Sulphate (mg/L)	mg/L	150[6]	1000[5]
Fluoride (mg/L)	mg/L	-	2[4]
Aluminium	mg/L	0.055[3,11]	5[4]
Arsenic[7]	mg/L	0.013[3,11]	0.5[4]
Cadmium (mg/L)	mg/L	0.0002[3,11]	0.01[4]
Copper (mg/L)	mg/L	0.0014[3]	1[4]
Lead (mg/L)	mg/L	0.0034[3,11]	0.1[4]
Manganese (mg/L)	mg/L	1.9[3,11]	-
Nickel (mg/L)	mg/L	0.011[3,11]	1[4]
Zinc (mg/L)	mg/L	0.008[3,11]	20[4]

[1] All metals and metalloids must be measured as filtered with the exception of fluoride.

[2] All metals and metalloids must be measured as total (unfiltered).

[3] Based on ANZG (2018)..

[4] Based on ANZECC/ARMCANZ (2000) Table 4.3.2 for livestock drinking water.

[5] Based on ANZECC/ARMCANZ (2000) Section 4.3.3.4;

[6] MMG Dugald River - site specific value

[7] Speciated arsenic concentrations for As (III) and As (V) only required if 13 mg/L is exceeded - note that the sample bottle requirements for As (total species) and As (speciated) may differ.

[11] Where appropriate, the default trigger values may be hardness adjusted in accordance with ANZG (2018).

C36 If quality characteristics of groundwater from compliance bores identified in Schedule C – Table 7 (Groundwater Monitoring Locations and Frequency) exceed any of the trigger levels stated in Schedule C – Table 8 (Groundwater Trigger Levels and Contaminant Limits), the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and:

(a) if the level of contaminants at the compliance monitoring bore does not exceed the reference bore results, then no action is to be taken; and

(b) if the level of contaminants at the compliance monitoring bore is greater than the reference bore results, complete an investigation in accordance with the ANZECC and ARMCANZ 2000, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:

(i) details of the investigations carried out;

(ii) details of environmental impacts observed; and

(iii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with clause (b) of this condition, then no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

C37 Results of monitoring of groundwater from compliance bores identified in Schedule C – Table 7 (Groundwater Monitoring Locations and Frequency), must not exceed any of the contaminant limits defined in Schedule C – Table 8 (Groundwater Trigger Levels and Contaminant Limits).

Monitoring Bore Construction, Maintenance and Decommissioning

C38 The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring.

Reporting

C39 A report on groundwater monitoring, including monitoring results and interpretations, must be prepared by a relevantly qualified and suitable person on a biennial (two yearly) basis and be made available to the administering authority on request. The report must include:

(a) An assessment of groundwater monitoring results against the objectives of the MMG Dugald River Mine Groundwater Monitoring Program.

(b) A review of groundwater compliance against requirements specified in the environmental authority.

(c) Any proposed refinement or update to the groundwater monitoring program or environmental authority, with respect to monitoring locations, frequency, parameters, specified trigger values and/or specified contaminant limits, that may be applicable on review of the collected data or other relevant information.

END OF CONDITIONS FOR SCHEDULE C

Schedule D – Regulated Structures

Assessment of Consequence Category

D1 The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* at the following times:

(a) prior to the design and construction of the structure, if it is not an existing structure; or

(b) prior to any change in its purpose or the nature of its stored contents.

D2 A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.

D3 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

Notification of affected persons

D4 All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure

(a) for existing structures that are regulated structures, within 10 business days of this condition taking effect;

(b) prior to the operation of the new regulated structure; and

(c) if the emergency action plan is amended, within 5 business days of it being amended.

Operation of a Regulated Structure

D5 Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority, all of the following:

(a) one paper copy and one electronic copy of the design plan and certification of the ‘design plan’ in accordance with condition D6;

(b) a set of ‘as constructed’ drawings and specifications;

(c) certification of those ‘as constructed drawings and specifications’ in accordance with condition D9;

(d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan;

(e) the requirements of this authority relating to the construction of the regulated structure have been met;

(f) the holder has entered the details required under this authority, into a Register of Regulated Structures; and,

(g) there is a current operational plan for the regulated structure.

D6 For existing structures that are regulated structures:

(a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within 12 months of the commencement of this condition a copy of the certified system design plan including that structure; and

(b) there must be a current operational plan for the existing structures.

D7 Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in compliance with the current operational plan and, if applicable, the current design plan and associated certified ‘as constructed’ drawings.

Mandatory Reporting Level

D8 Conditions D15 to D16 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.

D9 The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.

D10 The holder must, as soon as practicable but within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.

D11 The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

D12 The holder must record any changes to the MRL in the Register of Regulated Structures.

Design Storage Allowance

D13 The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.

D14 By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).

D15 The holder of this environmental authority must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

D16 The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

Annual Inspection Report

D17 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

D18 At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.

D19 The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

D20 The holder of this environmental authority must:

(a) within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority:

(i) the recommendation section of the annual inspection report; and,

(ii) if applicable, any actions being taken in response to those recommendations; and

(b) If, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days of receipt of the request.

Transfer Arrangements

D21 The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.

Decommissioning and Rehabilitation

D22 Regulated structures must not be abandoned but be either:

(a) decommissioned and rehabilitated to achieve compliance with condition D23; or

(b) be left in-situ for a use by the landholder provided that:

(i) it no longer contains contaminants that will migrate into the environment; and

(ii) it contains water of a quality that is demonstrated to be suitable for its intended use(s); and

(c) the holder of the environmental authority and the landholder agree in writing that the;

(i) dam will be used by the landholder following the cessation of the environmentally relevant activity(ies); and

(ii) landholder is responsible for the dam, on and from an agreed date.

D23 Before surrendering this environmental authority the site must be rehabilitated to achieve a safe, stable, non-polluting landform.

Register of Regulated Dams

D24 A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.

D25 The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated dam is submitted to the administering authority.

D26 The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition D11 and D12 has been achieved.

D27 The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.

D28 All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.

D29 The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.

Transitional arrangements

D30 All existing regulated structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in Schedule D - Table 1 (Transitional hydraulic performance requirements for existing structures), depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.

D31 Schedule D - Table 1 (Transitional hydraulic performance requirements for existing structures) ceases to apply for a structure once any of the following events has occurred:

(a) it has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or

(b) it has been decommissioned; or

(c) it has been certified as no longer being assessed as a regulated structure.

D32 Certification of the transitional assessment required by D30 (as applicable) must be provided to the administering authority within 6 months of amendment of the authority adopting this schedule.

Schedule D – Table 1 (Transitional hydraulic performance requirements for existing structures)

Transition period required for existing structures to achieve the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams*			
Compliance with criteria	**High**	**Significant**	**Low**
>90% and a history of good compliance performance in last 5 years	No transition required	No transition required	No transitional conditions apply. Review consequence assessment every 7 years.
>70%-≤90%	Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 10 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	No transitional conditions apply. Review consequence assessment every 7 years.
>50-≤70%	Within 5 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 7 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment every 7 years.
≤50%	Within 5 years or as per compliance requirements (e.g. TEP timing)	Within 5 years or as per compliance requirements (e.g. TEP timing)	Review consequence assessment every 5 years.
Regulated levee designed to prevent the ingress of clean flood water <100% compliant7	Within 5 years unless otherwise agreed with the administering authority.		

Hydraulic performance of regulated dams

D33 Regulated dams must meet the hydraulic performance criteria specified in Schedule D - Table 2 (Hydraulic performance criteria for Regulated Dams).

Schedule D - Table 2 (Hydraulic performance criteria for Regulated Dams)

Name of dam	**Consequence category**	**Hydraulic performance criteria**		
		Design Storage Allowance (DSA)	**Mandatory Reporting Level (MRL)**	**Spillway Capacity**
Stage 2 PAF Pad Run Off Dam	Significant[1]	N/A	N/A	1:100 AEP To 1:1000 AEP
Tailings Storage Facility	High[3]	1:20 AEP[2]	1:10 AEP 72 hr duration[2]	1:1 000 AEP To 1:100 000 AEP

[1] Consequence category assessed in ATC Williams (30 October 2019) report titled "MMG Dugald Rover Dugald River Mine Regulated Structures Annual Inspection Report –2019. Date: October 2019 Doc No: 108003.37-R01 Revision:0", which includes certification by Craig Noske (RPEQ 21885)

[2] Value to be calculated annually based on the significant consequence category for 'failure to contain – overtopping' scenario in line with the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933 – Version 5.02 – Effective 29

March 2016).

[3] Consequence category assessed in ATC Williams (24 May 2016) report titled ""MMG Dugald River Tailings Storage Facility: May 2016, ATCW Doc No: 108003.18-R03", which includes certification by Mark Dillon (RPEQ 8690).

Tailings Disposal

D34 Upon disposal of tailings into the tailings storage facility, the holder of this environmental authority must inspect the tailings storage facility weekly to identify and register any fauna mortalities. This information will be made available to the administering authority upon request within and forty eight (48) hours of the discovery of any fauna mortalities. Details of mortalities will include but not be limited to:

(a) animal species of the discovery of any fauna mortality;

(b) number of animals;

(c) location; and

(d) likely cause of death.

D35 If in the opinion of the administering authority, the mortality rate referred to in condition D34 is unacceptable, the holder of this environmental authority will be required to develop and implement an action plan to reduce the mortality rate and provide the action plan to the administering authority within one (1) month of the plan being required.

END OF CONDITIONS FOR SCHEDULE D

Schedule E – Sewage

Sewage Treatment Management Plan

E1 A Sewage Treatment Management Plan that provides for the proper and effective management of actual and potential environmental impacts resulting from the operation of sewage treatment plants and to ensure compliance with the conditions of the environmental authority must be implemented and maintained.

E2 The Sewage Treatment Management Plan must include but no be limited to:

(a) topographical map of suitable scale clearly showing the licensed place and surrounding land likely to be affected by the sewage treatment plants along with the location of any sensitive receptors;

(b) a site plan including the Q100 flood level in conjunction with licensed place boundaries and infrastructure and buffer zones;

(c) detail any potential impact on groundwater and surface water from the discharge of effluent; and

(d) strategies for managing and minimising the impact on surface water and groundwater; and

Alarms

E3 Sewage treatment infrastructure must be fitted with stand-by pumps and pump-failure alarms as well as high level alarms to warn of imminent overflow. All alarms must be able to operate via telemetry and without mains power.

Sewage Treatment – Effluent Release to Waters

E4 Treated sewage effluent may be released to waters from the STP Dam in accordance with the conditions of this environmental authority.

E5 Notwithstanding the monitoring requirements specified Schedule C of this environmental authority, the release of contaminants to waters from the STP Dam release point must also be monitored at the release point STP Dam and for each quality characteristic and at the frequency specified in Schedule E - Table 1 (Sewage Effluent Contaminant Release Limits).

Schedule E - Table 1 (Sewage Effluent Contaminant Release Limits)

Quality Characteristic	Release Limit	Monitoring Frequency
Total Nitrogen (mg/L)	20	Daily during release (the first sample must be taken within 2 hours of commencement of release)
Total Phosphorous (mg/L)	5	
5 Day Biochemical Oxygen Demand (mg/L)	20	
Faecal Coliforms (cfu/100mL)	1000	
Free Residual Chlorine (mg/L)	1	

E6 The release of contaminants to waters must not exceed the release limits stated in Schedule E - Table 1 (Sewage Effluent Contaminant Release Limits) for each quality characteristic.

END OF CONDITIONS FOR SCHEDULE E

Schedule F – Noise and Vibration

Noise Monitoring

F1 The holder of this environmental authority must ensure that noise generated by the mining activity does not cause a nuisance at a sensitive place or commercial place.

F2 In the event of a complaint made to the administering authority, considered in the opinion of an authorised officer to be neither frivolous or vexatious, about noise generated in carrying out the mining activity and the noise is considered by the administering authority to be an unreasonable noise, the holder of this environmental authority must take action to ensure that it is no longer an unreasonable noise. Noise monitoring and recording must include the following descriptor characteristics and matters:

(a) L_{Aeq}

(b) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 15 minutes);

(c) background noise $L_{A90,}$;

(d) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;

(e) atmospheric conditions including temperature, relative humidity and wind speed and directions;

(f) effects due to any extraneous factors such as traffic noise;

(g) location, date and time of monitoring;

(h) if the complaint concerns low frequency noise, Max $Lp_{LIN,T}$; and

(i) if the complaint concerns low frequency noise, one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

F3 In the event of a complaint about noise from the mining activities, noise from the mining activities must not exceed the criteria in Schedule F – Table 1 (Noise Limits).

Schedule F – Table 1 (Noise Limits)

Noise Level dB(A) Measured As:	7 Days per Week		
	7am to 6pm	6pm to 10pm	10pm to 7am
$L_{Aeq, adj, T}$	40	35	30

Note: T = 15 minutes

Air Blast and Ground Vibration

F4 The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in Schedule F – Table 2 (Blasting Noise Limits) to be exceeded at any sensitive place or commercial place.

Schedule F – Table 2 (Blasting Noise Limits)

Blasting Noise Limits	Sensitive or Commercial Place Limits	
	7am to 6pm	6pm to 7am
Airblast overpressure	115 dB (Linear) peak for four (4) out of five (5) consecutive blasts initiated and not greater than 120 dB (Linear) peak at any time	95 dB (Linear) peak

Ground vibration peak particle velocity	5mm/second peak particle velocity for four (4) out of five (5) consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	1mm/second peak particle velocity

F5 The holder of this environmental authority must implement measures to reduce airblast overpressure and ground vibration impacts upon receipt of a complaint such that blasting activities no longer cause environmental harm.

F6 Where blast monitoring detects non-compliance with Schedule F – Table 2 (Blasting Noise Limits) the holder of this environmental authority must:

(a) take steps to ensure compliance is achieved by subsequent blasts; and

(b) continue to monitor all consecutive blasts until at least three (3) successive blasts comply with Schedule F – Table 2 (Blasting Noise Limits).

F7 The method of measurement and reporting of airblast overpressure levels must comply with the most recent Australian standard *Explosives – Storage and use* guidelines.

F8 The method of measurement and reporting of vibration levels must comply with the most recent edition of the administering authority's guideline *Noise and vibration from blasting.*

END OF CONDITIONS FOR SCHEDULE F

Schedule G – Non Mineral Waste

Waste Management Program

G1 A Waste Management Program must be developed and implemented by the environmental authority holder and submitted to the administering authority upon request.

Waste Disposal

G2 All general and regulated waste (other than waste authorised in condition G3) must be removed from the licensed place to a facility that is lawfully able to accept the waste.

G3 The only waste that can be disposed of on the licensed place is waste generated on the licensed place and is limited to:

(a) waste rock;

(b) tailings;

(c) tyres;

(d) plastic; and

(e) SIPEX and Sodium Metabisulphite containers.

G4 Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.

Regulated Waste

G5 Regulated waste, other than that authorised to be disposed of at the licensed place under this environmental authority, must only be removed and transported from the licensed place by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste.

G6 Regulated waste generated by the mining activity can be temporarily stored at the licensed place prior to removal provided it is for a period no longer than six (6) months and it is stored in a manner to minimise risk of fire or contamination of land or waters.

G7 Each container of regulated waste stored awaiting movement from the licensed place must be clearly marked to identify the contents.

Tyre Storage and Disposal

G8 Tyres stored awaiting disposal or transport for take-back and recycling or waste-to-energy options – must be stockpiled in volumes less than three (3) metres in height and 200m^2 in area and at least ten (10) metres from any other tyre storage area.

G9 Fire prevention measures must be implemented including the removal of all combustible materials, including grass and vegetation, within a ten (10) metre radius of any tyre storage area.

G10 Subject to demonstrating to the administering authority that no other use higher in the waste hierarchy can be practicably implemented, waste tyres generated from the mining activity may be disposed of at the licensed place in the underground mine workings.

END OF CONDITIONS FOR SCHEDULE G

Schedule H – Mineral Waste

Tailings Disposal

H1 Tailings must be managed in accordance with procedures contained within the Mineral Waste Tailing Disposal Plan. The Mineral Waste Tailing Disposal Plan must be regularly reviewed and updated every three years. These procedures must include provisions for:

(a) containment of tailings in accordance with the approved design plan(s);

(b) the management of seepage and leachates both during operation and post closure;

(c) the control of fugitive emissions to air;

(d) a program of progressive sampling and characterisation to identify acid producing potential and metal concentrations of tailings that must include:

(i) progressive characterisation of all tailings material during disposal for net acid producing potential (NAPP) and the following contaminants: arsenic, cadmium, copper, cyanide, iron, lead, manganese, nickel, silver, zinc, fluoride and sulfate;

(ii) geochemical kinetic testing where the acid producing potential of tailings material has not been conclusively determined to indicate oxidation rates, potential reaction products and effectiveness of control strategies.

(e) management of tailings in order to minimise the potential for environmental harm.

Waste Rock

H2 No waste rock dumps are to remain upon surrender of environmental authority.

H3 All potentially acid forming (PAF) waste material is to be returned to the North or South Decline at end of mine life and must not cause environmental harm.

H4 Non-acid forming waste rock (NAF) may be used in rehabilitation or the construction of temporary or permanent structures within the operational areas if it is characterised as un-reactive (including material that does not cause acid, neutral or saline mine drainage).

H5 A Waste Rock Management Plan must be developed and implemented by the environmental authority holder and submitted to the administering authority upon request.

H6 Waste rock disposal must not occur on the licensed place unless the holder of this environmental authority has submitted to the administering authority a waste rock management plan. The waste rock management plan must be certified by an appropriately qualified person, to ensure the plan has addressed the requirements of this environmental authority in accordance with best practice environmental management.

H7 The waste rock management plan must include:

(a) a detailed design of the waste rock dumps;

(b) characterisation of the waste rock to predict the quality of runoff and seepage generated, including salinity, acidity, alkalinity, dissolved metals, metalloids and non-metallic inorganic substances;

(c) a program of progressive sampling program to validate pre-mine waste rock characterisation. The waste rock sampling program must include validation of salinity, acid and alkali producing potential and metal concentrations including arsenic, cadmium, copper, lead, manganese, nickel, silver, zinc, fluoride and sulfate;

(d) where the acid rock drainage potential / neutral mine drainage potential of waste rock material has not been conclusively determined, geochemical kinetic testing must be conducted to indicate oxidation rates, potential reaction products and effectiveness of control strategies;

(e) records must be maintained of all waste rock characterisation and disposal including contingency planning for the management of acid rock / neutral mine drainage;

(f) a materials balance and disposal plan demonstrating how potentially acid forming and acid forming waste rock will be selectively placed and/or encapsulated to minimise the generation of acid mine

drainage;

(g) a materials balance and disposal plan demonstrating how waste rock that has a potential to generate neutral and/or saline mine drainage will be selectively placed and managed to minimise the generation of neutral and/or saline mine drainage;

(h) a sampling program to verify encapsulation and/or placement of potentially acid forming / acid forming waste rock / waste rock that has a potential to generate neutral mine drainage;

(i) how often the performance of the plan will be assessed;

(j) a rehabilitation strategy which meets the rehabilitation objectives specified in Schedule I of this environmental authority; and

(k) monitoring or rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of the placed materials, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover.

H8 The waste rock dumps must be designed, constructed and operated to minimise the infiltration of incidental rainfall into the waste rock dump.

H9 Any seepage from the waste rock dump must be captured and directed to an appropriately engineered and maintained storage authorised to receive seepage in accordance with Schedule D – Regulated Structures of this environmental authority.

Acid Rock Drainage Management

H10 Subject to the release limits defined in Schedule – C of this environmental authority, all reasonable and practicable measures must be implemented to prevent contaminated water being directly or indirectly released or likely to be released as a result of the mining activity to any waters.

END OF CONDITIONS FOR SCHEDULE H

Schedule I – Land and Rehabilitation

General

I1 Unless authorised by this environmental authority contaminants that will or may cause environmental harm must not be directly or indirectly released to land.

I2 Any spillage of wastes, contaminants or other materials must be cleaned up promptly. Such spillages must be cleaned up using dry methods that minimise the impact of the release of wastes, contaminants or materials to land.

Topsoil

I3 Topsoil and subsoils must be stripped and stockpiled ahead of the areas proposed to be disturbed for the mining activity to a depth determined from soil surveys to ensure that useable soil resources are preserved for rehabilitation.

I4 Topsoil and subsoil stockpiles must be managed to ensure stability and minimise the release of contaminants. Measures must include:

(a) Vegetating stockpiles;

(b) Minimising the height of stockpiles; and

(c) Re-using stockpiles as soon as possible.

I5 A topsoil and subsoil inventory which identifies the soil requirements for the mining activity and availability of suitable soil on the licensed place must be submitted to the administering authority upon request.

Disturbance to Land

I6 When carrying out the mining activity the holder of this environmental authority must:

(a) avoid, minimise or mitigate (in order of preference) any impacts on areas of sensitive vegetation or other areas of ecological value;

(b) minimise the risk of injury, harm, or entrapment to wildlife and stock;

(c) minimise disturbance to land that may otherwise result in land degradation;

(d) prior to carrying out any disturbance activities, make all relevant staff, contractors or agents carrying out those activities, aware of the location of any Category A, B or C Environmentally Sensitive Area (ESA) and the relevant requirements of this environmental authority;

(e) if significant disturbance to land is unavoidable, the holder of this environmental authority must clear vegetation in a way which minimises fragmentation; and

(f) manage cleared vegetation so that it is stockpiled in a manner that facilitates salvage and respreading and does not impede vehicle, stock or wildlife movements.

I7 A registered spotter/catcher is to be engaged to work ahead of site clearing works at the commencement of vegetation clearing to ensure the protection of species that may be of conservation significance.

Note: This environmental authority does not authorise the taking of protected animals or the tampering with an animal breeding place that is being used by a protected animal to incubate or rear the animal's offspring.

I8 In the event of identification of threatened species on the licensed place, a diagrammatic representation of the species occurrence relative to the mining activity together with a management and monitoring strategy for species conservation must be prepared to the satisfaction of the administering authority and submitted with the plan of operations.

Purple-necked Rock-wallaby Monitoring Program *(Petrogale purpureicollis)*

I9 The holder of this environmental authority must take all reasonable and practicable measures to avoid, minimise and mitigate impacts on the Purple-necked Rock-wallaby *(Petrogale purpureicollis).*

I10 A purple-necked rock-wallaby monitoring program must be implemented by an appropriately qualified person to monitor and record the effects of the mining activity on the purple-necked rock wallaby population. The purple-necked rock-wallaby monitoring program must be implemented and maintained for the life of the environmental authority.

I11 The purple-necked rock-wallaby monitoring program required by condition I10 must be conducted annually in each wet and dry season and must include the following at a minimum:

(a) an estimation of the number of purple-necked rock-wallabies inhabiting the licensed place;

(b) continuation of data collection on suitable purple-necked rock-wallaby shelter sites and foraging areas;

(c) details of the person that undertook the monitoring program and the methods used;

(d) details of when (both date and time of day) and the climatic conditions at the time that the monitoring program was undertaken;

(e) an estimation of the number and type of pest species occurring along the Knapdale Range within the licensed place that may impact on the population of the purple-necked rock-wallaby;

(f) noise monitoring utilising a broadband (non-A weighted) recording system;

(g) consideration and comparison to previous similar monitoring programs;

(h) support for findings as follows including photos/records of the purple-necked rock-wallaby, scats or other trace material; and

(i) procedures for notification to the administering authority and contingency plans in the event that any significant decline in the purple-necked rock-wallaby population is detected.

I12 A report detailing the results of the purple-necked rock-wallaby monitoring program carried out in accordance with conditions I10 and I11 must be provided to the administering authority, before 1 February each year.

Rehabilitation Objectives

I13 Rehabilitation must commence progressively as soon as areas become available and in accordance with the Progressive Rehabilitation and Closure Plan (PRCP) PRCP-EPML00731213-V2.

Infrastructure

I14 All buildings, structures, mining equipment and plant erected and/or used for the mining activity must be removed from the licensed place prior to surrender, except where agreed to in writing by the administering authority and the landowner.

Chemicals and Flammable or Combustible Liquids

I15 All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, *flammable or combustible* liquids and dangerous goods must be stored and handled in accordance with the current, relevant Australian Standard where such is applicable.

I16 Notwithstanding the requirements of any applicable Australian Standard, any liquids stored on licensed place that have the potential to cause environmental harm must be stored and serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land.

I17 Where no relevant Australian Standard is available, the following must be applied:

(a) storage tanks must be bunded such that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and

(b) drum storages must be bunded such that the capacity and construction of the bund is sufficient to

contain at least 25% of the maximum design storage volume within the bund.

I18 All containment systems must be designed to minimise rainfall collection within the system.

Contaminated Land

I19 Prior to making an application for surrender or approval for progressive rehabilitation the holder of this environmental authority must undertake a contaminated land assessment / investigation of the relevant areas of the licensed place in accordance with, but not limited to, the following guidance: National Environment Protection (Assessment of Site Contamination) Amendment Measure, 2013. Other appropriate guidance may also be utilised where appropriate, however, application of any additional guidance must not contradict the requirements of Qld legislation and guidance.

Biodiversity Offsets

I20 The holder of this environmental authority must implement and maintain the *Biodiversity Offset Strategy* and the *Dugald River Project: Offset Area Management Plan*, developed in accordance with the *Queensland Biodiversity Offset Policy.*

I21 Significant residual impacts to prescribed environmental matters, other than if the impacts were authorised by an existing authority issued before the commencement of the Environmental Offsets Act 2014, are not authorised under this environmental authority or the Environmental Offsets Act 2014 unless the impact is specified in 'Schedule I – Table 1 (Significant residual impacts to prescribed environmental matters)'.

Schedule I – Table 1 (Significant residual impacts to prescribed environmental matters)

Prescribed environmental matter	**Location of impact** **GDA94 (Zone 55)**	**Maximum extent of impact**
Prescribed Regional Ecosystem (RE) within defined distance of the defining banks of a watercourse		
TBA	TBA	TBA

I22 Records demonstrating that each impact to a prescribed environmental matter not listed in 'Schedule I – Table 1 (Significant residual impacts to prescribed environmental matters)' did not, or is not likely to, result in a significant residual impact to that matter must be:

(a) Completed by an appropriately qualified person; and
(b) Kept for the life of the environmental authority.

I23 An environmental offset made in accordance with the *Environmental Offsets Act 2014* and Queensland Environmental Offsets Policy, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environmental matter authorised in 'Schedule I – Table 1 (Significant residual impacts to prescribed environmental matters)', unless a lesser extent of the impact has been approved in accordance with condition I25.

I24 Prior to the commencement of any impacts to a prescribed environmental matter for which an environmental offset is required by condition I23, a report completed by an appropriately qualified person that contains an analysis of the estimated maximum extent of impact to each prescribed environmental matter must be provided to the administering authority.

I25 The report required by condition I24 must be approved by the administering authority before the notice of election, if applicable, is given to the administering authority.

I26 The notice of election for the environmental offset required by condition I25, if applicable, must be provided to the administering authority no less than three months before the proposed commencement of the significant residual impacts for which the environmental offset is required.

Watercourse crossings

I27 All watercourse crossings must be constructed in accordance with the *Accepted Development requirements for operational work that is constructing or raising waterway barrier works , version 1.3*, (Fisheries Queensland, Department of Agriculture and Fisheries, 2018).

I28 All watercourse crossings must be demonstrated to be constructed to minimise the clearing of riparian vegetation.

END OF CONDITIONS FOR SCHEDULE I

Schedule J – Wind farm (Renewable Energy Project)

General

J1 Activities relating to the wind farm (renewable energy project) must comply with the conditions in Schedule J of this environmental authority in addition to all other conditions of this environmental authority.

Planning

J2 The EA holder must prepare and submit to the administering authority 3 months prior to construction a final Project Layout Plan (PLP) that includes the following elements:

(a) Identifies stages of development and development sequence; and
(b) Final project footprint and final position (including co-ordinates) of all aspects of development including stockpiles, watercourse crossings and underground infrastructure.
(c) Detailed design plans and certification of the design plans for all elements of the development, including but not limited to wind turbines, wind monitoring towers/meteorology masts, stockpiles, roads and hardstand areas, powerlines, laydown areas, site offices, workshops, substations, watercourse crossing and underground infrastructure;

J3 An "as constructed" report and drawings must be prepared and certified by a RPEQ prior to commencement of operation of the relevant stage of the wind farm in accordance with PLP required under condition J2, and submitted to the administering authority within 5 business days upon written request. The "as constructed" report and drawings must include:

(a) The as-constructed specifications and location of all aspects of the development;
(b) Co-ordinates for all wind turbines and wind monitoring towers/meteorology masts~~;~~
(c) heights above ground level for all wind turbines and wind monitoring towers/meteorology masts;
(d) assessment of any deviations of the construction from the detailed design; and
(e) a statement by the RPEQ certifying that the construction has been completed in conformity with the certified design.

J4 The EA holder must prepare and submit to the administering authority a Construction Environmental Management Plan (CEMP) prepared by a suitably qualified person one month prior to commencement of construction works for each stage of the wind farm in accordance with the PLP required under condition J2. The CEMP must:

(a) Ensure the location of infrastructure required for construction is within the final project footprint and in accordance with detailed design plans required under condition J2;
(b) Include details of consultation with all relevant stakeholders;
(c) Include measures to manage construction noise, dust and vibration, including:
  (i) A description of construction noise and the activities and equipment likely to generate noise, vibration and dust emissions;
  (ii) Identification of proposed hours of work, what work will be undertaken during those hours and in compliance with conditions F1, F2 and F3 of this environmental authority;
  (iii) A description and locations of sensitive places that may be affected by noise, vibration or dust emissions from construction;
  (iv) Description of the noise, vibration and dust impact control measures to be implemented to minimise noise, vibration and dust impacts at sensitive receptors;
  (v) Descriptions of methods to be used to monitor performance and receive, record and respond to complaints;
(d) Include erosion and sediment control in accordance with Condition J9;
(e) Include implementation of measures to mitigate flood risks identified in accordance with condition J5; and
(f) An assessment and consideration of geotechnical and slope stability risks associated with the construction.

J5 The EA holder must prepare a flood risk assessment associated with the construction and operation of the windfarm, prior to commencement of construction. The flood risk assessment must:

(a) Be prepared by a suitably qualified person;
(b) Be based on the final project footprint and final design plan required in accordance with condition J2;
(c) Have consideration of the CEMP required in accordance with condition J4;
(d) Consider the PMF flood event;
(e) Include an assessment of potential impacts of flooding;
(f) Identify measures to manage and mitigate potential flood risks and impacts;
(g) Be submitted to the administering authority prior to commencement of construction if the assessment of flood risk indicates potential inundation of mine domain areas including (but not limited to) underground mining portals, areas adjacent to or including the WRD, water storages. Otherwise, the assessment must be submitted to the administering authority within 5 business days upon request.

J6 The EA holder must prepare an updated Noise Impact Assessment (NIA) prior to commencement of construction of the windfarm. The NIA must:

(a) Be prepared by a suitably qualified acoustic consultant;
(b) Reflect the final wind turbine model and ancillary equipment selection and siting as described in the detailed design in J2, and demonstrate compliance with the conditions F1, F2 and F3 of this environmental authority;
(c) Include the construction phase (with consideration of the CEMP required in accordance with condition J4), the operation phase, and the decommissioning phase of the wind farm; and
(d) Be submitted to the administering authority within 5 business days upon request.

J7 The EA holder must develop an Air Quality, Noise and Vibration Management Plan. The Air Quality, Noise and Vibration Management Plan must:

(a) Apply to the construction phase (with consideration of the CEMP required in accordance with condition J4), the operation phase, and the decommissioning phase of the wind farm;
(b) Be reviewed and updated by a suitably qualified person at the following times:
  (i) Three (3) months following the commencement of operation;
  (ii) Nine (9) months following the commencement of the wind farm (all turbines operating);
  (iii) Annually after the nine month operation review required by (ii);
(c) Include an Operation Noise Strategy (ONS) prepared by a suitably qualified acoustic engineer and detail any necessary operating measures/regime or wind sector management measures required to ensure noise emissions achieve compliance with conditions F1, F2 and F3 of this environmental authority.
(d) Include a decision-making framework and adaptive management approach, including triggers for mitigation measures such as operational shut-down of relevant turbines during certain periods; and
(e) Be submitted to the administering authority within 5 business days upon request.

J8 The EA holder must implement and maintain the measures identified within the Air Quality, Noise and Vibration Management Plan required by condition J7.

J9 The EA holder must prepare an Erosion and Sediment Control Plan (ESCP) for the wind farm prior to commencement of construction to ensure compliance with the conditions of this environmental authority. The ESCP is to be prepared by a suitably qualified and experienced professional to address and manage potential impacts caused by clearing of the site. The ESCP must be prepared in accordance with Best Practice Erosion and Sediment Control (BPESCP) guidelines for Australia (International Erosion Control Australia). The ESCP must:

(a) Prevent sediment runoff from entering into watercourses and/or surrounding landscapes

during all construction phase from vegetation clearing, undertaking of civil works and during construction of turbines and ancillary infrastructure.

(b) Prevent sediment runoff from entering into watercourse and/or surrounding landscapes during operation and decommissioning phases of the windfarm;

(c) Include measures to:
  (i) Prevent accelerated soil erosion;
  (ii) Where prevention is not possible, minimise and mitigate accelerated soil erosion;
  (iii) Monitor, record and respond to soil erosion events.

(d) Include a monitoring and surveillance plan that is responsive to the seasonal erosion risks of the site;

(e) Include an emergency erosion management response protocol that must be enacted ahead of forecast weather events that may increase the likelihood of accelerated erosion;

(f) Include training of staff that will be responsible for maintenance and operation of sediment and erosion control structures;

(g) Be independently reviewed and endorsed by a suitably qualified third party prior to commencement of construction;

(h) Be reviewed and updated annually by a suitably qualified person; and

(i) Be submitted to the administering authority within 5 business days upon request.

Note: A suitably qualified and experienced professional must demonstrate all of the following:

1. Certification under a nationally recognised professional program in Erosion and Sediment Control (RSP-ESC or similar).
2. Completion of an advanced training course in erosion and sediment control, provided under the auspices of a reputable body such as the International Erosion Control Association (IECA) Australasia, Soil Science Australia, or similar, and be able to provide evidence of training.
3. More than 2 years' experience in implementing and designing erosion and sediment control plans and controls on site, which can be verified by an independent third party.
4. Professional affiliation with an engineering, environmental engineering, soil science, and/or scientific organisation (e.g. the International Erosion Control Association, Engineers Australia, Soil Science Australia, New Zealand Soil Science Society, Environment Institute of Australia and New Zealand, or Stormwater Industry Association).

J10 The EA holder must implement and maintain the erosion and sediment control measures in accordance with the ESCP required by condition J9.

J11 The EA holder must prepare, implement and maintain a Watercourse Crossing Management Plan (WCMP) prior to commencement of construction and maintain throughout construction, operation and decommissioning. The WCMP must be prepared by a SQP. The WCMP must:

(a) Include design plans for watercourse crossings as identified in the detailed design required in accordance with condition J2;

(b) Have regard to the measures identified in the ESCP required in condition J9;

(c) Include measures to ensure bank stability and maintain water quality during and following clearing within or adjacent to watercourse or drainage features;

(d) Include measures to ensure the protection or restoration of habitats during and following clearing within watercourse or drainage features;

(e) Review the receiving water monitoring network and identify suitable surface water monitoring locations to be included in Schedule C – Table 4 (Receiving Water and Stream Sediment Reference Sites and Downstream Monitoring Points) to monitor impacts of watercourse crossings on receiving waters from construction, operation and decommissioning stages of the wind farm;

(f) Demonstrate compliance with conditions I27 and I28 of this environmental authority;

(g) Be reviewed and updated annually by a suitably qualified person; and

(h) Be submitted to the administering authority within 5 business days upon request.

J12 The EA holder must prepare, implement and maintain a Cleared Vegetation Plan (CVP) prior to commencement of construction. The CVP is to be prepared by a SQP and submitted to the administering authority upon request. The CVP must include at minimum:

(a) Methods of onsite re-use of cleared vegetation where practicable;
(b) Methods of salvage of cleared vegetation where practicable;
(c) Identification of the location and extent of storage and stockpile areas for cleared vegetation;
(d) Measures to prevent cleared vegetation from being stacked or pushed against mature trees, habitat trees or tall immature trees; and
(e) An estimate of the amount of cleared vegetation to be removed from the site.

J13 The EA holder must prepare and update a Materials Balance for the wind farm development that includes all quantity and quality of topsoil and subsoil stockpiles, stockpile locations and identified management measures to ensure material is suitable for rehabilitation. The Materials Balance must be submitted to the administering authority within 5 business days upon request.

J14 The Waste Management Program required in accordance with condition G1 of this environmental authority, must be updated prior to commencement of construction to include:

(a) Measures for management of wind turbine blade replacement; and
(b) Demonstration that all wind turbine infrastructure and ancillary infrastructure will be reused and/or recycled to the maximum reasonable extent thereby minimising to the greatest extent practical material destined for landfill;
(c) Be submitted to the administering within 5 business days upon request.

Operation

J15 The EA holder muse prepare and implement a Stormwater Management Plan (SMP) with the detailed design plans and as-constructed report referenced in conditions J2 and J3 of this environmental authority, prior to commencement of operation of the windfarm. The SMP must:

(a) Be certified by an RPEQ;
(b) Relate to the operational and decommissioning phase of the windfarm;
(c) Be prepared in accordance with section 2.3 of the Queensland Urban Drainage Manual and demonstrate that all stormwater, wastewater, discharges and overland flows leaving the site during the operation phase are of the same quality and quantity of receiving waters prior to development of wind farm;
(d) consideration of the flood risk assessment required in accordance with condition J5 of the environmental authority;
(e) Be reviewed and updated annually by a suitably qualified person; and
(f) Be submitted to the administering authority within 5 business days upon request.

Birds and Bats Management Plan

J18 The EA holder must prepare and implement Bird and Bat Management Plan (BBMP) prior to the commencement of construction of the wind farm. The BBMP must be prepared by a suitably qualified bird and bat ecologist and based on the detailed design required in accordance with condition J2. The BBMP must:

(a) Include pre-commissioning surveys in accordance with condition J19;
(b) Demonstrate how implementation of the BBMP will avoid and mitigate harm to bird and bat species during construction, operation and decommissioning;
(c) Include a decision-making framework and adaptive management approach in accordance with condition J21;
(d) Identify trigger threshold levels for all species in accordance with condition J24;

(e) Include an impact risk assessment which must include consideration of at minimum:
   i. The site use surveys required in accordance with condition J20 and preliminary site characterisation required in accordance with condition J19;
   ii. Potential changes in site area use by bird and bat species during construction, operation and decommissioning;
   iii. Distribution of potential and known habitat for bird and bat species in the site area and surrounding region;
   iv. The characteristics of the bird and bat species such as feeding and migratory behaviour and expected frequency, flight behaviour, and likely periods of presence in the site area;
   v. Detailed measures that will be taken during construction to avoid, mitigate, and control impacts of the wind farm on bird and bat species, and timeframes for the implementation of these measures;

(f) Include carcass search efficiency trials in accordance with condition J22;

(g) Be implemented for the duration of windfarm construction, operation and decommissioning stages; and

(h) Be submitted to the administering authority within 5 business days upon request.

J19 The BBMP must include the results of 24 months of pre-commissioning surveys undertaken prior to operation of the wind farm, to characterise all 'at risk' bird and bat species (i.e. all threatened and common species) movement through, presence in, and use of the site area. The surveys must:

(a) Be taken over relevant seasons and be of an appropriate duration and spatial coverage to adequately evaluate site use of bird and bats which may lead to high levels of mortality;

(b) Include preliminary site characterisation to identify all drivers of bird and bat species presence in, and use of the site area. This includes at minimum:
   i. Site characteristics including key habitat features, topography, prevailing wind (including likely locations of updrafts) and weather patterns, wetlands (including in the broader region of the site area) and distance to potential nesting, roosting and foraging areas; and
   ii. species characteristics including flight and demographic factors, behaviour in the site area, flight paths (including migratory flight paths), flight heights and characteristics (e.g. soaring or flocking), and population size.

J20 The BBMP must specify and commit to undertake site use surveys for each bird and bat species considered likely to enter the site area during construction and operation stages. The site use surveys must:

(a) Be undertaken over a period of at least 24 months;

(b) Be undertaken in each of at least 2 wet seasons and 2 dry seasons in succession;

(c) Be designed to support a Before-After, Control-Impacts (BACI) monitoring framework;

(d) Be conducted by a suitably qualified ecologist;

(e) Implement a methodology and timings which are consistent with the methodology of the baseline pre-commencement site use surveys;

(f) Ensure observed species behaviour changes, including any avoidance of turbines and altered site area use, is recorded; and

(g) Be designed to inform the adaptive management framework and enable timely implementation of corrective actions.

J21 The BBMP must include an adaptive management framework. The adaptive management framework must, at a minimum:

(a) Be prepared by a SQP;

(b) Detail carcass detection surveys, including timing, frequency, and search areas. Surveys must take account of the results of searcher efficiency trials, new techniques, and technologies to maximise carcass detection resulting from turbine collision and barotrauma

during commissioning and operation;

(c) specify the nature, timing, and frequency of ongoing monitoring programs to detect injury and mortality over the duration of the wind farm for each bird and bat species identified as being at risk of injury and/or mortality associated with the wind farm;

(d) specify additional survey effort in the site area for each bird and bat species identified as at risk under condition J18 at a temporal and spatial resolution justified to address the level of risk to the species;

(e) Include triggers for mitigation measures such as operational shut-down of relevant turbines during certain periods;

(f) detail avoidance and mitigation measures to be implemented;

(g) specify the impact trigger threshold for each bird and bat species identified as at risk under condition J24 and the management measures that will be implemented if these thresholds are met or exceeded;

(h) propose alternative mitigation and corrective measures supported by scientific literature if monitoring activities detect any of the specified triggers; and

(i) specify processes for periodic re-evaluation of site utilisation surveys, monitoring programs, risk assessments and mitigation and corrective measures.

J22 The BBMP must include a commitment for the EA holder to undertake carcass search efficiency trials associated with turbine collision and barotrauma once every 6 months during operation. The detail in the BBMP of the carcass search efficiency trials must include at minimum:

(a) an explanation of the approach undertaken, including a description of uncertainty in different components of the study design (e.g., searcher efficiency, carcass persistence, potential seasonal variation in efficiency, etc.) and how uncertainty has been addressed;

(b) consideration of the efficiency of all types of carcass search method (e.g. human observation, carcass detection dogs, etc.) and any uncertainty as to the efficiency of these methods; and

(c) consideration of bias associated with carcass removal or alteration by feral cats, foxes, dogs, pigs, and other scavengers.

J23 A report must be prepared by a suitably qualified ecologist to demonstrate compliance with the BBMP required in accordance with condition J18. The report must:

(a) Demonstrate whether the site area continues to be utilised by the range of species identified in the pre-commissioning surveys required in accordance with condition J19, and assess any changes in abundance or behaviour;

(b) Detail all turbine strikes accompanied by information in relation to each strike regarding the method of detection, likely factors resulting in the presence of the bird and bat species in the site area, and the prevailing environmental and metrological conditions at the estimated time of the collision;

(c) Estimates of the annual mortality and injury rate for each relevant bird and bat species;

(d) Include a recommendation on the need for additional surveys;

(e) Include an evaluation of the effectiveness of the measures implemented to avoid and mitigate mortality and/or injury to bird and bat species, including the steps taken and outcomes of implementing the adaptive management measures required in accordance with condition J21, including steps taken and outcomes of implementing adaptive management measures;

(f) Include an assessment of the likely effectiveness, of collision avoidance measures in preventing the impact trigger threshold required in accordance with condition J24, being reached.

(g) Be completed annually after commencement of operation of the first wind turbine;

(h) Be submitted to the administering authority within 5 business days upon request.

J24 The BBMP under condition J18 must incorporate and implement impact trigger thresholds as follows:

(a) The impact trigger thresholds must reflect thresholds of 0.1% of the estimated Queensland population of each species be used as a trigger for action;

(b) If it is detected or estimated that the impact trigger threshold for any bird and bat species has been met or is exceeded the EA holder must notify the administering authority within 5 business days from when it became aware that the impact trigger threshold has been, or will be, met or exceeded.

(c) The EA holder must cease the rotation of the wind turbine generator blades that were responsible for collisions with protected species within 5 business days of it becoming aware that the impact trigger threshold as met or exceeded or if the impact trigger threshold has been met during any given financial year.

(d) To mitigate harm to protected species, if the impact trigger threshold has been met or exceeded, the EA holder must submit to the administering authority, an Impact Trigger Avoidance Review. The Impact Trigger Avoidance Review must:

i. Be undertaken by a suitably qualified ecologist;

ii. Include consideration of recent sightings of the relevant bird and bat species in the site area and surrounding area within 50km of the site area;

iii. Include updates to the impact assessment of the wind farm on the bord and bat species and propose proactive measures to avoid and mitigate the risk of further impact trigger threshold exceedance events for relevant bird and bat species;

iv. Include updates to the risk assessment for the relevant bird and bat species;

v. Be submitted to the administering authority within 90 business days of the impact trigger threshold being reached;

(e) The EA holder must not recommence rotation of wind turbine generator blades unless the administering authority approves in writing the Impact Trigger Avoidance Review.

Decommissioning

J25 The EA holder must prepare and submit three months prior to finalisation of construction of the wind farm an End of Construction Decommissioning Management Plan (ECDMP). The ECDMP must:

a) Be prepared by a suitably qualified person;

b) Outline all actions to be undertaken to remove all construction facilities and infrastructure not required for the ongoing operation of the windfarm, including:

i. Removal of non-operational equipment, such as storage areas, site offices, concrete batching plants, construction areas;

ii. Removal and clean up of any contamination to land caused during construction; and

c) Include an assessment of areas available for progressive rehabilitation.

J26 The EA holder must decommission the construction related components of the wind farm in accordance with the ECDMP.

END OF CONDITIONS FOR SCHEDULE J

Schedule K – Definitions

Key terms and/or phrases used in this document are defined in this section. Applicants should note that where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

"acceptance criteria" means the measures by which the actions implemented to rehabilitate the land are deemed to be complete. The acceptance criteria indicate the success of the rehabilitation outcome or remediation of areas which have been significantly been disturbed by the mining activity. Acceptance criteria may include information regarding:

a) vegetation establishment, survival and succession;

b) vegetation productivity, sustained growth and structure development;

c) fauna colonisation and habitat development;

d) ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;

e) microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;

f) effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;

g) resilience of vegetation to disease, insect attack, drought and fire; and

h) vegetation water use and effects on ground water levels and catchment yields.

"acid mine drainage (AMD)" means any contaminated release emanating from a mining operation formed through a series of chemical and biological reaction, when geological strata is disturbed and exposed to oxygen and moisture as a result of the mining activity.

"acid rock drainage (ARD)" means any contaminated release emanating from a mining activity formed through a series of chemical and biological reactions, when geological strata is disturbed and exposed to oxygen and moisture as a result of the mining activity.

"administering authority" means the chief executive of the agency administering the *Environmental Protection Act 1994.*

"affected land" means land on which an event has caused or threatens serious or material environmental harm.

"affected person" is someone whose drinking water can potentially be impacted as a result of discharges from a dam or their life or property can be put at risk due to dwellings or workplaces being in the path of a dam break flood.

"airblast overpressure" means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dBL).

"Annual Exceedance Probability" or **"AEP"** the probability that at least one event in excess of a particular magnitude will occur in any given year.

"annual inspection report" means an assessment prepared by a suitably qualified and experienced person containing details of the assessment against the most recent consequence assessment report and design plan (or system design plan);

a) against recommendations contained in previous annual inspections reports;

b) against recognised dam safety deficiency indicators;

c) for changes in circumstances potentially leading to a change in consequence category;

d) for conformance with the conditions of this authority;

e) for conformance with the 'as constructed' drawings;

f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated

sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems);

g) for evidence of conformance with the current operational plan.

"ANZECC 2000" means Australian and New Zealand Environment Conservation Council Marine and Freshwater Quality Guidelines.

"appropriately qualified person" means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods or literature.

"assessed" or **"assessment"** by a suitably qualified and experienced person in relation to a consequence assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:

a) exactly what has been assessed and the precise nature of that determination;

b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;

c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and

d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

"associated works" in relation to a dam, means:

a) operations of any kind and all things constructed, erected or installed for that dam; and

b) any land used for those operations.

"authority" means an environmental authority or a development approval.

"environmental authority" means environmental authority under the *Environmental Protection Act 1994*.

"background" means the average of samples taken prior to the commencement of mining from the same waterway that the current sample has been taken.

"blasting" means the use of explosive materials to fracture:

a) rock, coal and other minerals for later recovery; or

b) structural components or other items to facilitate removal from a site or for reuse.

"bunded" means within bunding consistent with Australian Standard 1940.

"certification", "certifying", "certify" or certified" in relation to any assessment or documentation required by the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, means assessment and approval must be undertaken by a suitably qualified and experienced person in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

"CFU" means colony forming units.

"chemical" means:

a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth); or

b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council; or

c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 1997*;

d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth; or

e) any substance used as, or intended for use as:

(i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or

(ii) a surface active agent, including, for example, soap or related detergent; or

(iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or

(iv) a fertiliser for agricultural, horticultural or garden use; or

(v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or

(vi) manufacture of plastic or synthetic rubber.

"climatic season" means summer (1 December to 29 February), autumn (1 March to 31 May), winter (1 June to 31 August) and spring (1 September to 30 November).

"commercial place" means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads.

"consequence" in relation to a structure as defined, means the potential for environmental harm resulting from the collapse or failure of the structure to perform its primary purpose of containing, diverting or controlling flowable substances.

"consequence category" means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

"construction" or **"constructed"** in relation to a dam/structure includes building a new dam/structure and modifying or lifting an existing dam/structure, but does not include investigations and testing necessary for the purpose of preparing a design plan.

"contaminant" A contaminant can be a gas, liquid or solid; or an odour; or an organism (whether alive or dead), including a virus; or energy, including noise, heat, radioactivity and electromagnetic radiation; or a combination of contaminants

"contaminated" means the substance has come into contact with a contaminant.

"control measure" means any action or activity that can be used to prevent or eliminate a hazard or reduce it to an acceptable level.

"dam" means a land-based structure or a void that contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works.

"dam crest volume" means the volume of material (liquids and/or solids) that could be within the walls of a dam at any time when the upper level of that material is at the crest level of that dam. That is, the instantaneous maximum volume within the walls, without regard to flows entering or leaving (for example, via spillway).

"design plan" is a document setting out how all identified consequence scenarios are addressed in the planned design and operation of a regulated structure.

"design storage allowance" or **"DSA"** means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in that Manual.

"development approval" means a development approval under the *Integrated Planning Act 1997* or the *Sustainable Planning Act 2009* in relation to a matter that involves an environmentally relevant activity under the *Environmental Protection Act 1994*.

"EC" means electrical conductivity.

"effluent" treated waste water released from sewage treatment plants.

"emergency action plan" means documentation forming part of the operational plan held by the holder of this

environmental authority or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam/structure owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam/structure owners to annually update contact details that are part of the plan, and to comprehensively review the plan at least every five years.

"environmentally relevant activity (ERA)" means an environmentally relevant activity as defined under Section 18 of the *Environmental Protection Act 1994* and listed under Schedule 2 of the *Environmental Protection Regulation 2008.*

"existing structure" means a structure that was in existence prior to the adoption of this schedule of conditions under the authority.

"**flare pit**" means containment area where any hydrocarbon that is discovered in an over-pressured reservoir during a drilling operation is diverted to, and combusted. The flare pit is only used during the drilling and work over process on a petroleum well.

"flowable substance" means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

"flow event" means a surface water flow in a drainage feature or watercourse that occurs as a result of rainfall.

"hazard" in relation to a dam/structure as defined, means the potential for environmental harm resulting from the collapse or failure of the dam/structure to perform its primary purpose of containing, diverting or controlling flowable substances.

"hazard category" means a category, either low, significant or high, into which a dam/structure is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*.

"hazardous waste" means a substance, whether liquid, solid or gaseous that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause environmental harm.

"holder of this environmental authority" means any person who is the holder of, or is acting under, that environmental authority.

"hydraulic performance" means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933).

"implement" means to put (a plan, proposal, etc.) into effect.

"infrastructure" means water storage dam/structures, roads and tracks, buildings and other structures built for the purpose of the mining activity but does not include facilities required for the long term management of mining impacts or the protection of potential resources. Such facilities include dam/structures containing hazardous waste, waste rock dumps, voids, or ore stockpiles and buildings or other structures whose ownership can be transferred and which have a residual beneficial use for the next owner of the operational land or the background land owner.

"levee" means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times.

"land" in the "land schedule" of this document means land excluding waters and the atmosphere.

"land suitability" as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

"land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

"leachate" means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the operational land which contains soluble,

suspended or miscible contaminants likely to have been derived from the said material.

“licensed place” means the mining activities carried out at the mining tenements detailed in Table 3 (page 3) of this environmental authority.

“**low consequence dam**” means any dam that is not a high or significant consequence category as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).

“m” means metres.

“maintain” to keep in due condition, operation, or force.

"mandatory reporting level" or **"MRL"** means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority.

“Manual” means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933) published by the administering authority.

“measures” includes any measures to prevent or minimise environmental impacts of the mining activity such as bunds, silt fences, diversion drains, capping, and containment systems.

“metalliferous mine drainage” means any waters, contaminated with metals / metalloids or other contaminants as a result of the mining activity.

“mg/L” means milligrams per litre.

“mineral” means a substance which normally occurs naturally as part of the earth’s crust or is dissolved or suspended in water within or upon the earth’s crust and includes a substance which may be extracted from such a substance, and includes—

a) clay if mined for use for its ceramic properties, kaolin and bentonite;

b) foundry sand;

c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil there from;

d) limestone if mined for use for its chemical properties;

e) marble;

f) mineral oil or gas extracted or produced from shale or coal by in situ processes;

g) peat;

h) salt including brine;

i) shale from which mineral oil may be extracted or produced;

j) silica, including silica sand, if mined for use for its chemical properties;

k) rock mined in block or slab form for building or monumental purposes;

but does not include—

l) living matter;

m) petroleum within the meaning of the *Petroleum Act 1923*;

n) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;

o) water.

“ML” means megalitres.

“mL” means millilitres.

"modification" or **"modifying"**(see definition of "construction")

"NAF waste rock" means non-acid forming waste rock.

"NATA" means National Association of Testing Authorities, Australia.

"natural flow" means the flow of water through waters caused by nature.

"non polluting" means having no adverse impacts upon the receiving environment.

"noxious" means harmful or injurious to health or physical well being.

"offensive" means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

"operational plan" includes:

a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance);

b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.

"PAF waste rock" means potentially acid forming waste rock with either a Net Acid Producing Potential of greater than 5 kg of H_2SO_4/tonne or a Net Acid Generation oxidation pH of less than 4.5 (pH unit).

"peak particle velocity (ppv)" means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mm/s).

"performance" as it relates to site water balance, means the effectiveness of the water balance model to react to certain rainfall conditions.

"process water" means water used or produced during the mineral development activities.

"progressive rehabilitation" means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.

"protected area" means – a protected area under the *Nature Conservation Act 1992*; or

a) a marine park under the *Marine Parks Act 1992*; or

b) a World Heritage Area.

"receiving environment" means all groundwater, surface water, land, and sediments that are not disturbed areas authorised by this environmental authority.

"receiving waters" means all groundwater and surface water that are not disturbed areas authorised by this environmental authority.

"reference site" (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.

"Register of Regulated Structures" includes:

a) Date of entry in the register;

b) Name of the structure, its purpose and intended/actual contents;

c) The consequence category of the dam as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933);

d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;

e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;

f) For the regulated dam, other than in relation to any levees –

(i) The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;

(ii) Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area

(iii) Dam crest volume (megalitres);

(iv) Spillway crest level (metres AHD).

(v) Maximum operating level (metres AHD);

(vi) Storage rating table of stored volume versus level (metres AHD);

(vii) Design storage allowance (megalitres) and associated level of the dam (metres AHD);

(viii) Mandatory reporting level (metres AHD);

g) The design plan title and reference relevant to the dam;

h) The date construction was certified as compliant with the design plan;

i) The name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;

j) Details of the composition and construction of any liner;

k) The system for the detection of any leakage through the floor and sides of the dam;

l) Dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;

m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;

n) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

"regulated structure" means any structure in the significant or high consequence category as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933) published by the administering authority. A regulated structure does not include:

- a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container;
- a sump or earthen pit used to store residual drilling material and drilling fluid only for the duration of drilling and well completion activities;
- a flare pit.

"regulated waste" means non-domestic waste mentioned in schedule 7 of the *Environmental Protection Regulation 1998* (whether or not it has been treated or immobilised), and includes:

a) for an element – any chemical compound containing the element; and

b) anything that has contained the waste.

"rehabilitation" the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

"release event" means a surface water discharge from water storages or contaminated areas on the licensed place.

"representative" means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activity.

"residual drilling material" means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.

"RL" means reduced level, relative to mean sea level as distinct from depths to water.

"saline mine drainage" The movement of waters, contaminated with salt(s), as a result of the mining activity.

"self sustaining" means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

"sensitive place" means;

a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or

b) a motel, hotel or hostel; or

c) an educational institution; or

d) a medical centre or hospital; or

e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or

f) a public park or gardens.

"significant disturbance" – includes land;

a) if it is contaminated land; or

b) it has been disturbed and human intervention is needed to rehabilitate it;

(i) to a state required under the relevant environmental authority; or

(ii) if the environmental authority does not require the land to be rehabilitated to a particular state – to its state immediately before the disturbance.

Some examples of disturbed land include:

a) areas where soil has been compacted, removed, covered, exposed or stockpiled;

b) areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation and topsoil)

c) areas where land use suitability or capability has been diminished;

d) areas within a watercourse, waterway, wetland or lake where the mining activity occur;

e) areas submerged by tailings or hazardous contaminant storage and dam/structure walls in all cases;

f) areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity have ceased; or

g) areas where land has been contaminated and a suitability statement has not been issued.

However, the following areas are not included:

a) areas off lease (e.g. roads or tracks which provide access to the mining lease);

b) areas previously significantly disturbed which have achieved the rehabilitation outcomes;

c) by agreement with the administering authority, areas previously significantly disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);

d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the administering authority;

e) disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.

"**Site area**" means the area subject to the wind farm turbines and ancillary infrastructure as authorised under this environmental authority.

"subsoil", or substrata, is the layer of under the topsoil on the surface of the ground. The subsoil may include substances such as sand, silt and/or clay that has only been partially broken down by air, sunlight, water and wind, to produce true soil.

"spillway" means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges form the

dam, normally under flood conditions or in anticipation of flood conditions.

"spotter/catcher" means a registered spotter catcher operating under a current Rehabilitation Permit as prescribed by the Qld. Nature Conservation Act 1992.

"structure" means dam or levee.

"suitably qualified and experienced person" in relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 2002*, and has demonstrated competency and relevant experience:

a) for regulated dam/structures, an RPEQ who is a civil engineer with the required

   (i) qualifications in dam safety and dam design.

b) for regulated levees, an RPEQ who is a civil engineer with the required

   (i) qualifications in the design of flood protection embankments.

Note: It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.

"Suitably qualified bird and bat ecologist" means a person who has relevant professional qualifications and at least three (3) years of work experience undertaking bird and bat utilisation surveys in Australia and can give an authoritative assessment and advice on bird and bat utilisation surveys using relevant protocols, standards, methods and/or literature.

"Suitably qualified ecologist" means a person who has at least 5 years of work experience designing and implementing conservation land management for weeds, feral predators, purple-necked rock-wallaby, and has demonstrated their capability in achieving specified environmental outcomes and habitat quality uplift through conservation land management.

"system design plan" means a plan that manages an integrated containment system that shares the required DSA volume across the integrated containment system.

"TBA" means to be advised.

"trivial harm" means environmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than $5,000.

"µS/cm" means micro siemens per centimetre.

"void" means any constructed, open excavation in the ground.

"waste water" means used water from the mining activity, process water or contaminated storm water.

"watercourse" has the meaning in Schedule 4 of the Environmental Protection Act 1994 and means:

1) a river, creek or stream in which water flows permanently or intermittently—

   (a) in a natural channel, whether artificially improved or not; or

   (b) in an artificial channel that has changed the course of the watercourse.

2) Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

"water quality" means the chemical, physical and biological condition of water.

"waters" includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and banks of a watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater.

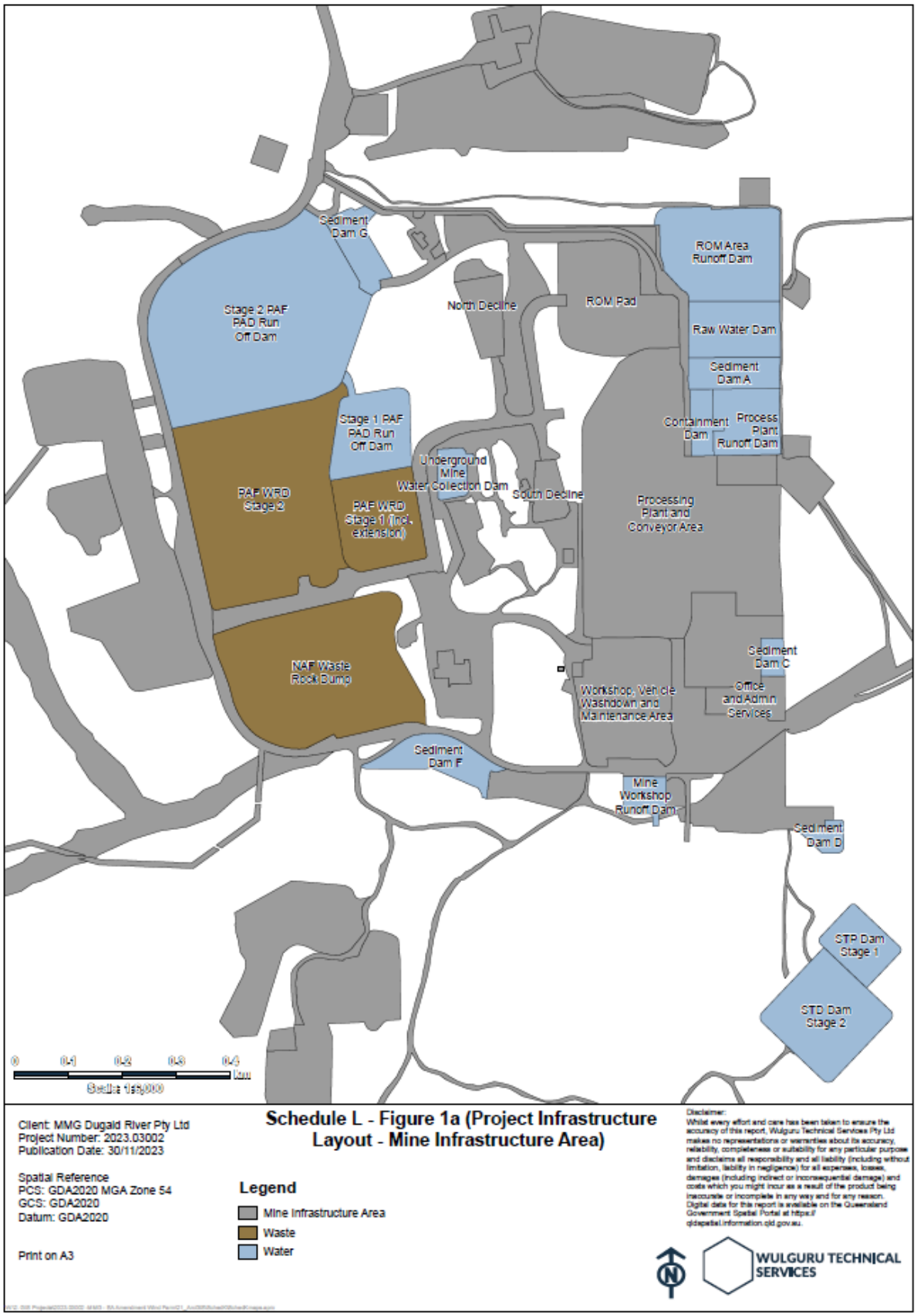
"wet season" means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.

“wind farm”

a) means the use of premises for generating electricity by wind force, other than electricity that is to be used as an ancillary activity to the mining activity; and
b) includes the use of premises for any of the following, if the use relates, or is ancillary to the use stated in paragraphs (a) –
   i. a wind turbine, wind monitoring tower or
   ii. anemometer;
   iii. a building or structure, including, for example, site office;
   iv. a storage area or maintenance facility, including for example. A laydown area;
   v. infrastructure or works, including for example site access, foundations, electrical works, substations or landscaping.

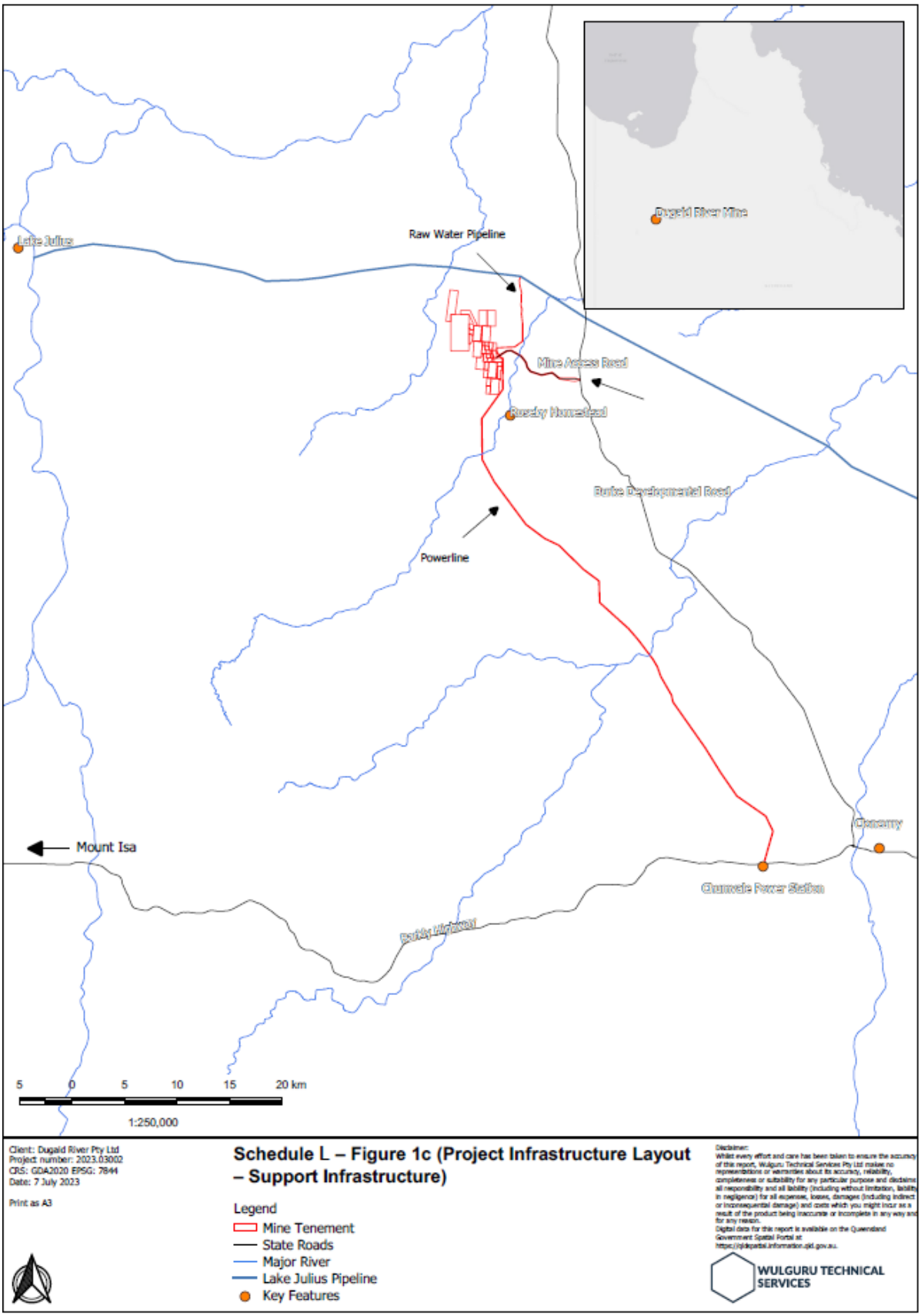
END OF DEFINITIONS FOR SCHEDULE K

Schedule L – Figure 1a (Project Infrastructure Layout – Mine Infrastructure Area)

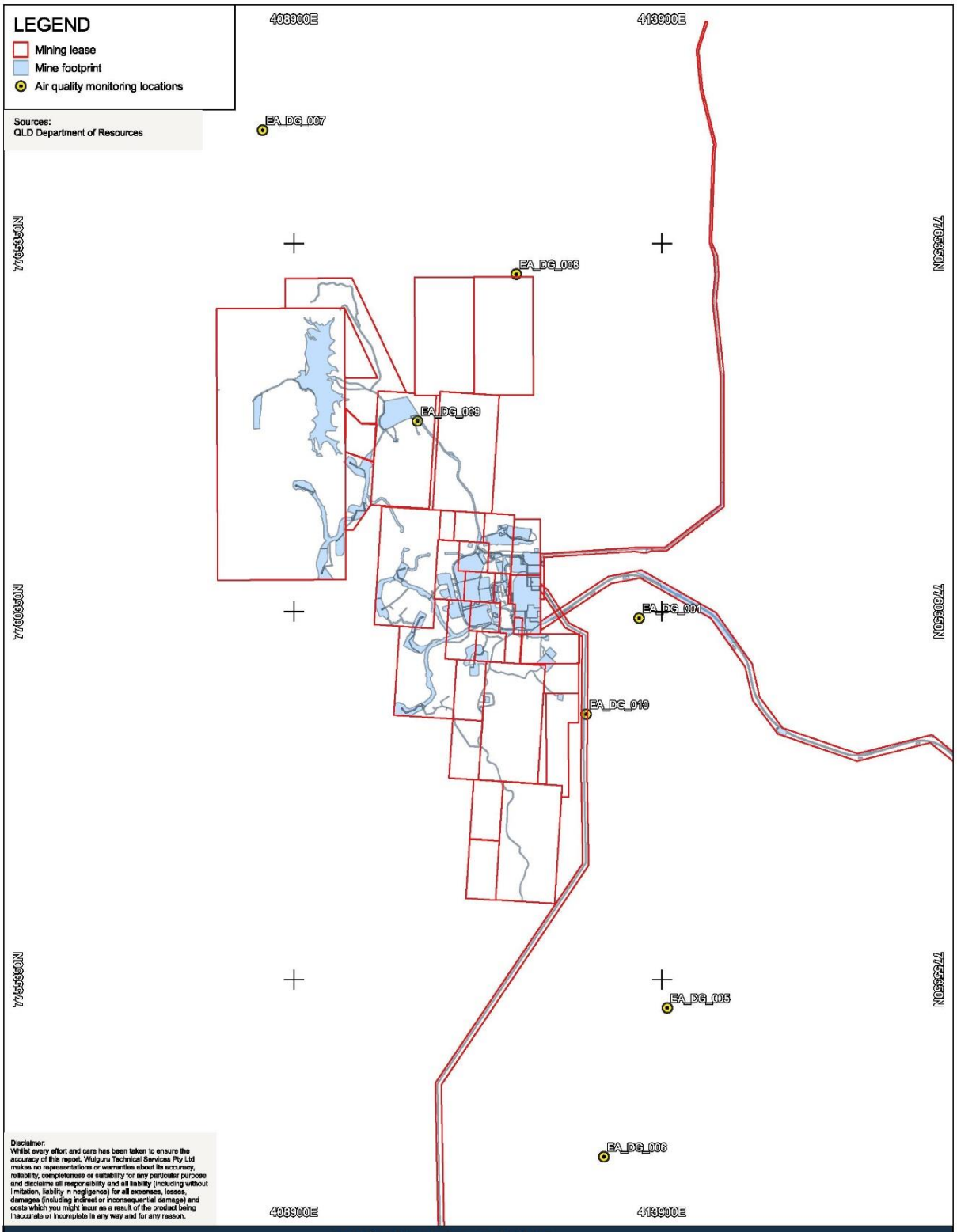


Schedule L – Figure 1b (Project Infrastructure Layout – TSF and Accommodation Village)

Schedule L – Figure 1c (Project Infrastructure Layout – Support Infrastructure)



Schedule L – Figure 2 (Air Quality Monitoring Program Monitoring Locations)

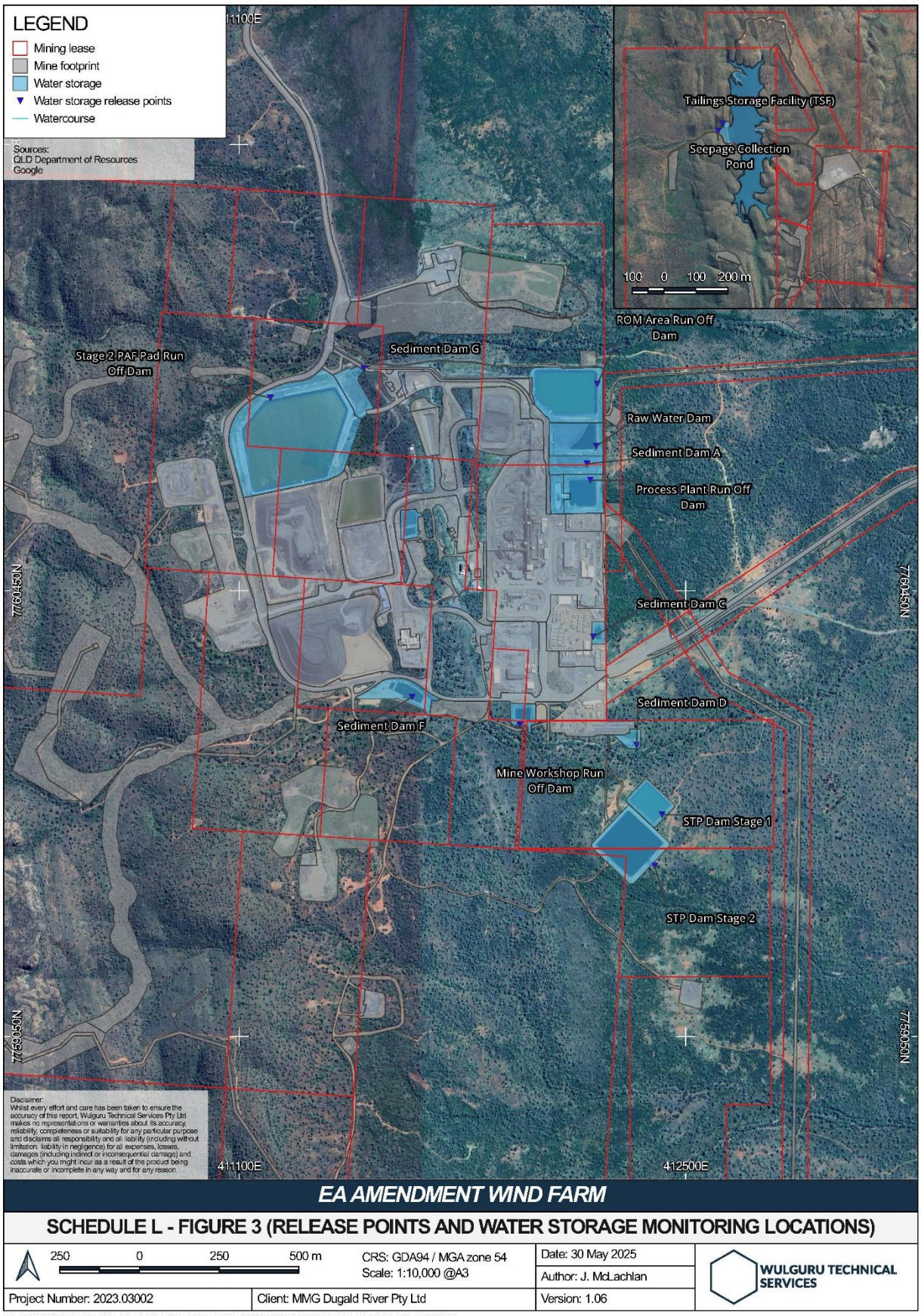


DUGALD RIVER MINE

SCHEDULE L - FIGURE 2 (AIR QUALITY MONITORING PROGRAM MONITORING LOCATIONS)

1.2 0 1.2 2.4 km	CRS: GDA2020 / MGA zone 54 Scale: 1:45,000 @A3	Date: 1 May 2025 Author: H. Robb	WULGURU TECHNICAL SERVICES
Project Number: 2023.03002	Client: MMG Dugald River Pty Ltd	Version: 0.03	

Schedule L – Figure 3 (Release Points and Water Storage Monitoring Locations)

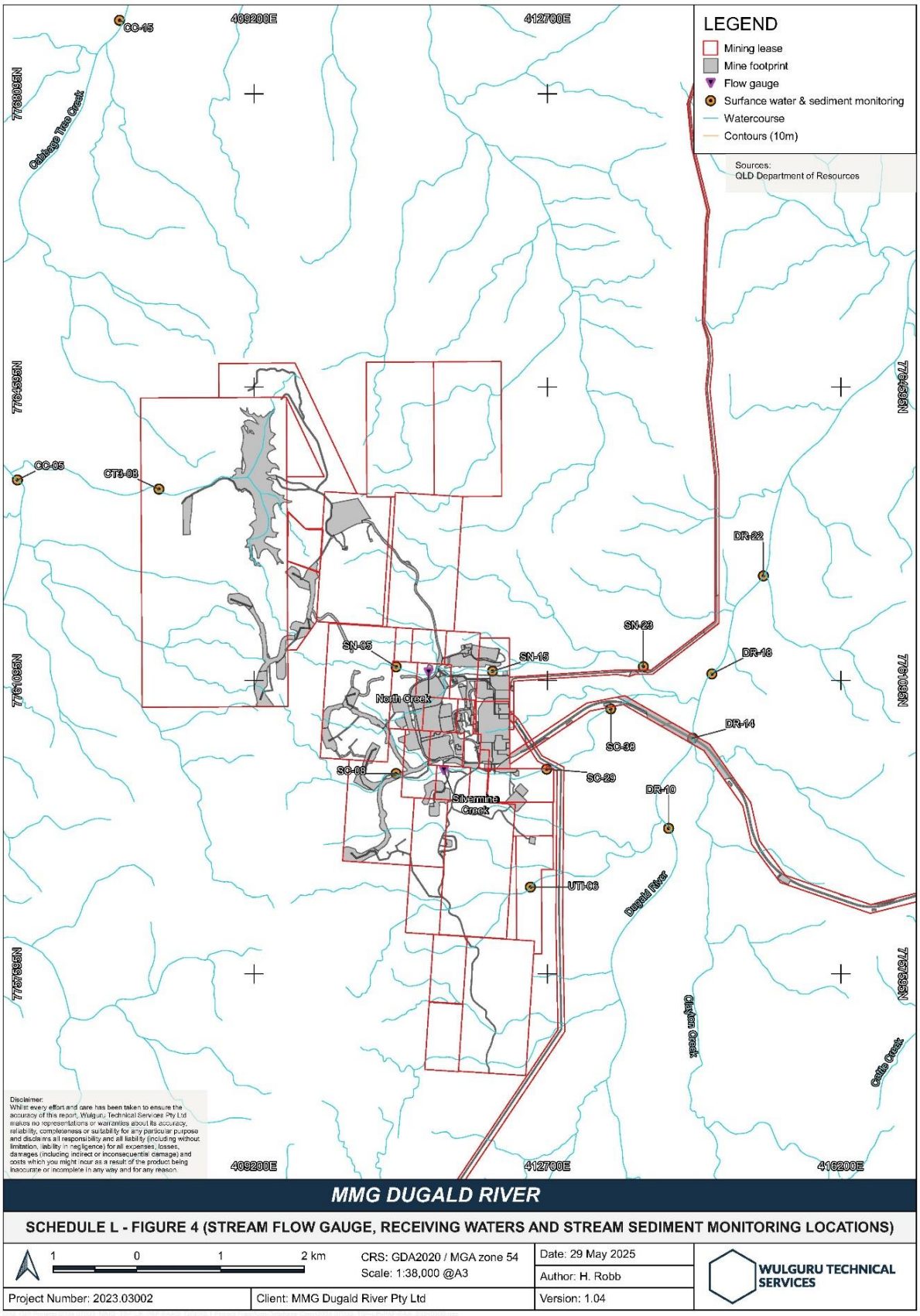


EA AMENDMENT WIND FARM

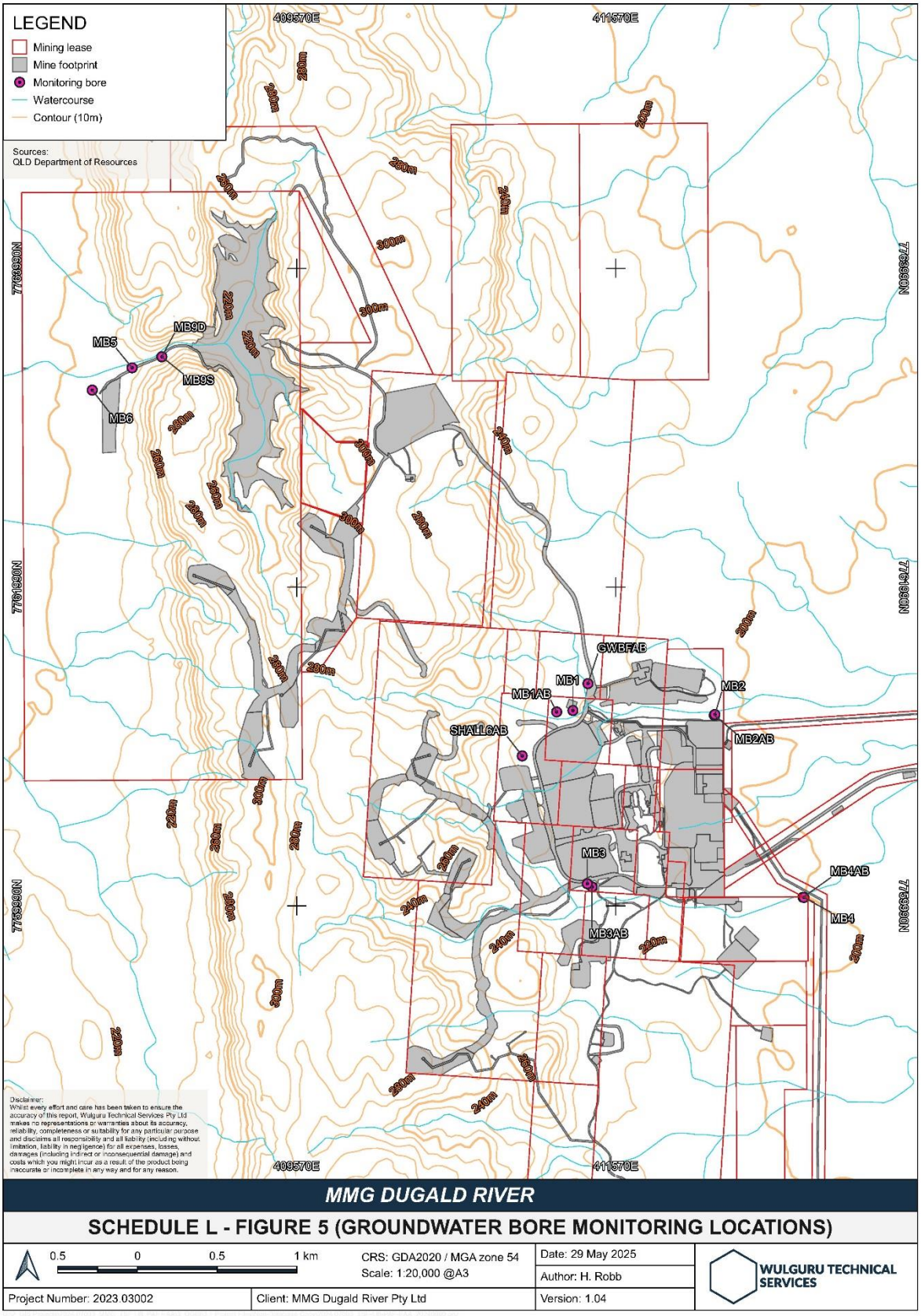
SCHEDULE L - FIGURE 3 (RELEASE POINTS AND WATER STORAGE MONITORING LOCATIONS)

250 0 250 500 m	CRS: GDA94 / MGA zone 54 Scale: 1:10,000 @A3	Date: 30 May 2025 Author: J. McLachlan	WULGURU TECHNICAL SERVICES
Project Number: 2023.03002	Client: MMG Dugald River Pty Ltd	Version: 1.06	

Schedule L – Figure 4 (Stream Flow Gauge, Receiving Waters and Stream Sediment Monitoring Locations)



Schedule L – Figure 5 (Groundwater Bore Monitoring Locations)



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